

JUN 10 2002

SEQUENCE LISTING

<110> Van Rooijen, Gijs
Deckers, Harm
Heifetz, Peter Bernard
Briggs, Steven
Dalmia, Bipin Kumar
Del Val, Greg
Zaplachinski, Steve
Moloney, Maurice

<120> METHODS FOR THE PRODUCTION OF MULTIMERIC PROTEINS, AND RELATED COMPOSITIONS

<130> 38814-351B

<140> 10/032,201
<141> 2001-12-19

<160> 313

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 1
taccatggct tcggaagaag ga

22

<210> 2
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 2
gaaagcttaa gccaaagtgtt tg

22

<210> 3
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 3
ggccagcaca ctaccatgaa tggtctcgaa actcac

36

<210> 4
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 4
ttaagcttca atcactctta ctttgctg

28

```

<210> 5
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 5
actggagatg ttgactcgac ggatactacg gattggtcga cggctatgga agaaggacaa 60
gtgatgcct gc 72

<210> 6
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 6
atccgtcgag tcaacatctc cagtttcctc ggtggtctcg ttagccttcg atccagcaat 60
ctcttgtaag aatgctctgc 80

<210> 7
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 7
gtggaagctt atggagatgg ag 22

<210> 8
<211> 1002
<212> DNA
<213> Arabidopsis thaliana

<400> 8
atgaatggtc tcgaaaactca caacacaagg ctctgtatcg taggaagtgg cccagcggca 60
cacacggcgg cgatttacgc agcttagggct gaacttaaac ctcttctctt cgaaggatgg 120
atggctaacg acatcgctcc cgggtggtaa ctaacaacca ccaccgacgt cgagaatttc 180
cccgatttc cagaaggat tctcggagta gagctcactg acaaattccg taaacaatcg 240
gagcgattcg gtactacgt atttacagag acggtgacga aagtgcattt ctcttcgaaa 300
ccgtttaagc tattcacaga ttcaaaagcc attctcgctg acgctgtgat tctcgctact 360
ggagctgtgg ctaagcggct tagttcggtt ggatctggta aaggttctgg aggtttctgg 420
aaccgtggaa tctccgcttgc tgctgtttgc gacggagctg ctccgatatt ccgtaaacaaa 480
cctcttcgaa tgatcggtgg aggcgattca gcaatggaa aagcaaactt tcttacaaaa 540
tatggatcta aagtgtatataatccatagg agagatgctt tagagcgtc taagattatg 600
cagcagcggag ctttgtctaa tcctaaagatt gatgtgatgg ggaactcgctc tgggtggaa 660
gcttatggag atggagaaaag agatgtgctt ggaggattga aagtgaagaa tgggttacc 720
ggagatgttt ctgatttaaa agtttcttgc ttgttctttgc tatttgtca tgagccagct 780
accaagtttt tggatgggtgg tggatggatgattt gattcggatg gttatgtgt cacgaagcct 840
ggtaactacac agactagcgt tcccggatgtt ttcgtcgcc gttatgttca ggataagaag 900
tataggcaag ccatcactgc tgcaggaact gggtgcattgg cagtttggta tgcagagcat 960
tacttacaag agattggatc tcagcaaggt aagagtgtt ga 1002

<210> 9
<211> 999
<212> DNA
<213> Arabidopsis thaliana

<400> 9
atgaatggtc tcgaaaactca caacacaagg ctctgtatcg taggaagtgg cccagcggca 60
cacacggcgg cgatttacgc agcttagggct gaacttaaac ctcttctctt cgaaggatgg 120

```

atggctaaccg	acatcgctcc	cgggtggtaaa	ctcaaccaac	caccgcgtga	gaatttcccc	180
ggattttccag	aaggtagttct	cgagtagag	ctcaactgaca	aattccgtaa	acaatcgag	240
cgattcggtt	ctacgatatt	tacagagacg	gtgacgaaag	tcgatttctc	ttcgaaaccg	300
ttaagctat	tcacagattt	aaaagccatt	ctcgctgacg	ctgtgattct	cgctatcgga	360
gctgtggcta	agtggcttag	cttcgttgga	tctggtgaag	ttctcgagg	tttgtgaaac	420
cgtggaatct	ccgcttgtgc	tgtttgcac	ggagctgctc	cgatattccg	caacaaacct	480
cttgcgtgtt	tcgggtggagg	cgatttctgca	atggaagaag	caaactttct	tacaaaatat	540
ggatctaaag	tgtatataat	cgataggaga	gatgcttta	gagcgtctaa	gattatgcag	600
cagcgaatgtt	tgtctaaatcc	taagattgtat	gtgatggat	actcgctgtt	tgtggaaatgt	660
tatggagatg	gagaaaagaga	tgtgtggtaa	ggatttggaaag	tgaagaatgt	ggttaccgga	720
gatgtttctg	attaaaaatgt	ttctggattt	ttctttgtta	tttgtcatga	gccagctacc	780
aaggttttgg	atgggtgggt	tgagtttagat	tcggatggtt	atgttgcac	gaagcctgg	840
actacacaga	ctagcgttcc	cggagtttc	gctgcgggtt	atgttcagga	taagaagtat	900
aggcaagcca	tcaactgctgc	aggaactggg	tgcatggcag	cttggatgc	agagcattac	960
ttacaqaqaa	tttgatctca	qcaaggttaag	agtgattga			999

```
<210> 10
<211> 1002
<212> DNA
<213> Arabidopsis thaliana
```

<221> CDS
<222> (1)...(1002)
<223> cDNA encoding NADPH thioredoxin reductase

Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn		
				165				170						175			
ttt	ctt	aca	aaa	tat	gga	tct	aaa	gtg	tat	ata	atc	cat	agg	aga	gat		576
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp		
				180				185					190				
gct	ttt	aga	gca	tct	aag	att	atg	cag	cag	cga	gct	ttg	tct	aat	cct		624
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro		
				195				200				205					
aag	att	gat	gtg	att	tgg	aac	tcg	tct	gtg	gaa	gct	tat	gga	gat			672
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp		
				210				215			220						
gga	gaa	aga	gat	gtg	ctt	gga	gga	ttg	aaa	gtg	aag	aat	gtg	gtt	acc		720
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr		
				225				230			235				240		
gga	gat	gtt	tct	gat	tta	aaa	gtt	tct	gga	ttg	ttc	ttt	gct	att	ggt		768
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly		
				245				250			255						
cat	gag	cca	gct	acc	aag	ttt	ttg	gat	ggt	ggt	gtt	gag	tta	gat	tcg		816
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser		
				260				265			270						
gat	ggt	tat	gtt	gtc	acg	aag	cct	ggt	act	aca	cag	act	agc	gtt	ccc		864
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro		
				275				280			285						
gga	gtt	ttc	gct	gcg	ggt	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc		912
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala		
				290				295			300						
atc	act	gct	gca	gga	act	ggg	tgc	atg	gca	gct	ttg	gat	gca	gag	cat		960
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His		
				305				310			315				320		
tac	tta	caa	gag	att	gga	tct	cag	caa	ggt	aag	agt	gat	tga				1002
Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp	*				
				325				330									

<210> 11
<211> 333
<212> PRT
<213> Arabidopsis thaliana

<400> 11																	
Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser		
1															15		
Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu		
															30		
Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly		
															45		
Gly	Gln	Leu	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro			
															60		
Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser		
															80		
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp		
															95		
Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu		
															110		
Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser		
															125		
115								120									

Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
 130 135 140
 Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys
 145 150 155 160
 Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn
 165 170 175
 Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp
 180 185 190
 Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro
 195 200 205
 Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp
 210 215 220
 Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr
 225 230 235 240
 Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly
 245 250 255
 His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser
 260 265 270
 Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro
 275 280 285
 Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala
 290 295 300
 Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His
 305 310 315 320
 Tyr Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp
 325 330

<210> 12
 <211> 332
 <212> PRT
 <213> Arabidopsis thaliana

<400> 12
 Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser
 1 5 10 15
 Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
 20 25 30
 Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
 35 40 45
 Gly Gln Leu Asn Gln Pro Pro Arg Glu Asn Phe Pro Gly Phe Pro Glu
 50 55 60
 Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
 65 70 75 80
 Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
 85 90 95
 Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
 100 105 110
 Asp Ala Val Ile Leu Ala Ile Gly Ala Val Ala Lys Trp Leu Ser Phe
 115 120 125
 Val Gly Ser Gly Glu Val Leu Gly Gly Leu Trp Asn Arg Gly Ile Ser
 130 135 140
 Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro
 145 150 155 160
 Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe
 165 170 175
 Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile Asp Arg Arg Asp Ala
 180 185 190
 Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys
 195 200 205
 Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly
 210 215 220
 Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly
 225 230 235 240
 Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His
 245 250 255
 Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp

260	265	270
Gly Tyr Val Val Thr Lys Pro Gly	Thr Thr Gln Thr Ser Val Pro Gly	
275	280	285
Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile		
290	295	300
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr		
305	310	315
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp		320
325	330	

<210> 13
<211> 333
<212> PRT
<213> Arabidopsis thaliana

<400> 13			
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser			
1	5	10	15
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu			
20	25	30	
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly			
35	40	45	
Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro			
50	55	60	
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser			
65	70	75	80
Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp			
85	90	95	
Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu			
100	105	110	
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser			
115	120	125	
Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile			
130	135	140	
Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys			
145	150	155	160
Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn			
165	170	175	
Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp			
180	185	190	
Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro			
195	200	205	
Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp			
210	215	220	
Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr			
225	230	235	240
Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly			
245	250	255	
His Glu Pro Ala Thr Lys Phe Leu Asp Gly Val Glu Leu Asp Ser			
260	265	270	
Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro			
275	280	285	
Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala			
290	295	300	
Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His			
305	310	315	320
Tyr Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp			
325	330		

<210> 14
<211> 3129
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS

<222> (1555) ... (1899)

<223> Chimeric: Arabidopsis thioredoxin h gene derived from *Arabidopsis thaliana* fused with the phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*

<400> 14

ctgcaggaaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
tggttttta cctctattta aagggggttt ccacctaataa attctggtat cattctca 120
ttactgtta cttaatttc tcataatctt tggtgaaat tatacgcctt ccgcacacga 180
tatccctaca aattttat ttgttaaaca tttcaaacc gcataaaaattt ttatgaagtc 240
ccgtctatct ttaatgtatg ctaacatccc cataattgaaa tatataattt acttaattt 300
agcgttggta gaaagcataa tgatttattt ttattcttct tcataataat gttaaata 360
caatataaac aaattctta ccttaagaag gattccccat ttatatttt aaaaatata 420
ttatcaaata ttttcaacc acgtaaatct cataataata agttgttca aaagtaataa 480
aatttaactc cataattttt ttattcgaact gatcttaaag caacacccag tgacacaact 540
agccattttt ttcttgaat aaaaaatcc aattatcatt gtatTTTT tatacatga 600
aaatttcacc aaacaatcat ttgtggattt tctgaagcaa gtcatgttat gcaaaattct 660
ataattccca tttgacacta cggaaagtaac tgaagatctg cttttacatg cgagacacat 720
cttctaaagt aatttaata atagttacta tattcaagat ttcatatcatg aaatactcaa 780
tattactt aaaaaattaa tttagataaa tttaaatattt acttttttaa ttttaagttt 840
aatttgtgaa ttgtgacta ttgattttt attctactat gtttaaattt tttatagat 900
agtttaaagt aaatataagt aatgttagtag agtggtagag tggtaaccctt aaccataaac 960
tataagattt atggggact aattttcata tatttctt tgcctttacc ttttcttgg 1020
atgtaaatcc gtaactggaa ttactgtggg ttgccatggc actctgtggg ctttgggtc 1080
atgcatggat gcttgcgcaa gaaaaagaca aagaacaaag aaaaaagaca aaacagagag 1140
acaaaacgca atcacacaaac caactcaaat tagtcactgg ctgatcaaga tcgccccgtc 1200
catgtatgtc taaatgccc gcaaaagcaac acgtgtttaa catgcacttt aaatggctca 1260
cccatctcaa cccacacaca aacacatgc cttttcttc atcatcacca caaccacctg 1320
tatatattca ttcttctccg ccacctcaat ttcttcaactt caacacacgt caacctgcat 1380
atgcgtgtca tccccatggcc aaatctccat gcatgttcca accaccttct ctcttatata 1440
ataccatataa ataccatctaa tatcactcac ttcttctatc atccatccat ccagagact 1500
actactctac tactataata ccccaaccca actcatattc aatactactc tact atg 1557

Met
1

gct tcg gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca tgg 1605
Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr Trp
5 10 15

aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt 1653
Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Lieu Val Val Val
20 25 30

gat ttc acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca ttc 1701
Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe
35 40 45

ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt 1749
Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val
50 55 60 65

gat act gat gaa ttg aag tcg gtg gca agt gat tgg gcg ata cag gcg 1797
Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala
70 75 80

atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt 1845
Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val
85 90 95

gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg 1893
Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu
100 105 110

gct taa gcttaataag tatgaactaa aatgcatgtt ggtgttaagag ctcatggaga 1949
Ala *

gcatggaaa	ttgttatccga	ccatgtaaaca	gtataataac	tgagctccat	ctcacttctt	2009
ctatgaataa	acaaaggatg	ttatgtatata	ttaacactct	atctatgcac	tttattgttc	2069
tatgataaat	ttccctttat	tattataaat	catctgaatc	gtgacggctt	atggaatgct	2129
tcaaatagta	caaaaacaaa	tgtgtactat	aagactttct	aaacaattct	aacttttagca	2189
tttgtgaacga	gacataagtg	ttaagaagac	ataacaatta	taatggaaga	agtttgctc	2249
catttatata	ttatataattt	cccactttag	tattatatta	ggatgttaag	gagacataac	2309
aattataaaag	agagaagttt	gtatccattt	atatattata	tactacccat	ttatataattt	2369
tacttatcca	cttattttat	gtctttataa	ggtttgcattc	atgatatttc	taatattttt	2429
gttgatatagt	atatgaaaagg	gtactatttgc	aactctctta	ctctgtataa	aggttggatc	2489
atcccttaaag	tgggtctatt	taattttattt	gtttcttaca	gataaaaaaa	aaattatgag	2549
ttgggtttgtat	aaaatatttg	aggatttaaa	ataataataa	ataataaaata	acatataata	2609
tatgtatata	aattttat	aatataaacat	ttatctataa	aaaagtaaat	attgtcataa	2669
atctatataaa	tcgttttagcc	ttgctggacg	actctcaatt	attnaaacga	gagtaaacat	2729
atttgacttt	ttggttattt	aacaaatttat	tatttaacac	tatatgaaat	tttttttttt	2789
tatccggcaag	gaaataaaaat	taaaatttagga	gggacaatgg	tgtgtcccaa	tccttataaca	2849
accacactcc	acaggaaggt	caggtcgggg	acaacaaaaaa	aacaggcaag	gaaaaattttt	2909
taatttgggt	tgtcttggtt	gctgcataat	ttatgcagta	aaacactaca	cataaccctt	2969
tttagcagtag	agcaatgggt	gaccgtgtgc	ttagcttctt	ttattttattt	tttttatcag	3029
caaagaataa	ataaaaataaa	atgagacact	tcagggatgt	ttcaaccctt	ataaaaaacc	3089
ccccaaaacaa	gtttccttagc	accctaccaa	ctaaggtacc			3129

<210> 15
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> *Arabidopsis thaliana*

```

<400> 15
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
      5          10          15
      1
Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
      20          25          30
      2
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
      35          40          45
      3
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
      50          55          60
      4
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
      65          70          75          80
      5
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
      85          90          95
      6
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
      100         105         110
      7
Leu Ala

```

```
<210> 16
<211> 3888
<212> DNA
<213> Artificial sequence
```

<220>
<223> Chimeric: *Arabidopsis oleosin* gene derived from *Arabidopsis thaliana*
fused with the phaseolin promotor and phaseolin terminator derived from
Phaseolus vulgaris

<221> CDS
<222> (1555) . . . (1907)

<221> CDS
<222> (2148) . . . (2659)

<400> 16
ctgcaggaaat tcattgtact cccagtatca ttatagtgaa agtttggct ctctcgccgg 60

tggttttta cctctattt aagggtttt ccaccta aaa attctggat catttcact 120
 ttacttgta cttaattt tcataatctt tggttgaat tatcacgctt ccgcacacga 180
 tatccctaca aatttattat ttgttaaaca tttcaaaacc gcataaaattt ttatgaagtc 240
 ccgtctatct ttaatgttagt ctaacattt catattgaaa tatataattt acttaatttt 300
 agcgttggta gaaagcataa tgatttattt ttatcttct tcataataat gtttaatata 360
 caatataaac aaattcttta ccttaagaag gatttcccat ttatatttt aaaaatataat 420
 ttatcaataa ttttcaacc acgttaaatct cataataata agttgttca aaagaataaa 480
 aatttaactc cataattttt ttatcgact gatcttaaag caacaccagg tgacacaact 540
 agccatttt ttcttgaat aaaaaatcc aattatcatt gtatttttt tatacatg 600
 aaatttcacc aaacaatcat ttgtggatt tctgaagcaa gtcatgttat gcaaattct 660
 ataattccca ttgacacta cggagaatac tgaagatctg ctttacatg cgagacacat 720
 cttctaaagt aattttaata atagttacta tattcaagat ttcatatatc aaatactcaa 780
 tattacttct aaaaaattaa ttagatataa taaaatattt actttttttaa ttttaagttt 840
 aatttgtgaa ttgttgacta ttgatttattt attctactat gtttaaattt tttttagat 900
 agttaaagt aaatataaagt aatgttagtag agtggtagt gtttaccctt aaccataaaac 960
 tataagattt atggtggact aattttcata tatttttattt tgcttttacc ttttcttgg 1020
 atgtaagtcc gtaactggaa ttactgtggg ttgccccggc actctgtggg cttttgggtc 1080
 atgcatggat gcttgcgaa gaaaaagaca aagaacaaag aaaaaagaca aaacagagag 1140
 acaaaacgca atcacacaac caactcaa at tagtcactgg ctgatcaaga tcgcccgcgc 1200
 catgtatgtc taaatgccat gcaaaggcaac acgtgtttaa catgactttaa aatggctca 1260
 cccatctcaa cccacacaca aacacatttc ctttttcttc atcatcacca caaccacctg 1320
 tatataattca ttctcttccg ccacctcaat ttcttcattt caacacacgt caacctgcat 1380
 atgcgtgtca tcccatgccc aaatctccat gcatgttcca accaccttct ctcttatata 1440
 atacctataa atacctctaa tatcactcac ttcttcattt atccatccat ccagagact 1500
 tactactctac tactataata ccccaaccca actcatatcc aatactactc tact atg 1557
 Met
 1

gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1605
 Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
 5 10 15

tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1653
 Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
 20 25 30

gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1701
 Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
 35 40 45

gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1749
 Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
 50 55 60 65

gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1797
 Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
 70 75 80

agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1845
 Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
 85 90 95

ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1893
 Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
 100 105 110

tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttggtca 1947
 Ser Trp Ile Tyr Lys
 115

atatgtgcattt gcatgtgtttt agccaggtagc tttggatcaa tttttttttt cgaataacaa 2007
 atgttacaat aagaaatttc aaattcttgg gaacatttgg ttaacttaat acgaaatttg 2067
 accttagctttagt ctgtgtata tcataatata aggtaaaatg cttggatgtca 2127
 taccttattttttaa ttgttataat g tac gca acg gga gag cac cca cag gga tca 2178
 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
 120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat	2226
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp	
130 135 140	
ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa	2274
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu	
145 150 155 160	
cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg gct tcg	2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Ala Ser	
165 170 175	
gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca tgg aac gag	2370
Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr Trp Asn Glu	
180 185 190	
cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt gat ttc	2418
Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val Asp Phe	
195 200 205	
acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca ttc ttt gct	2466
Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala	
210 215 220	
gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt gat act	2514
Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val Asp Thr	
225 230 235 240	
gat gaa ttg aag tcg gtg gca agt gat tgg gcg ata cag gcg atg cca	2562
Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala Met Pro	
245 250 255	
acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt gtt gga	2610
Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val Val Gly	
260 265 270	
gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg gct taa	2658
Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu Ala *	
275 280 285	
g cttataagt atgaactaaa atgcatgtag gtgttaagagc tcatggagag	2709
catggatat tttatccgac catgtaacag tataataact gagctccat tcacttcttc	2769
tatgataaaa caaaggatgt tatgatataat taacactcta tctatgcacc ttattgttct	2829
atgataaaatt tcccttttattataatc atctgaatcg tgacggctta tggaatgctt	2889
caaataatgtac aaaaacaaat gtgtactata agactttcta aacaattcta accttagcat	2949
tgtgaacgag acataatgtt taagaagaca taacaattat aatggaaagaa gtttgctcc	3009
atttatataat tatataattac ccacttatgt atttatattag gatgttaagg agacataaca	3069
attataaaga gagaagttt tatccattat tatattataat actaccatt tatataattat	3129
acttatccac ttatttaatg tctttataag gtttgatcca tggatattct aatatttttag	3189
ttgatatgtat tatgaaaggg tactatttga actctcttac tctgtataaa ggttggatca	3249
tcccttaaagt gggcttattt aattttattt cttcttacag ataaaaaaaaa aattatgagt	3309
tgttttgata aaatattgaa ggattttaaa taataataaa taataaataa catataataat	3369
atgtatataa atttattata atataacatt tatctataaa aaagtaataa ttgtcataaa	3429
tctataacat cgtttagcct tgctggacga ctctcaatta tttaaacgag agtaaacata	3489
tttgactttt tggttattt acaaattt atttaacact atatgaaatt tttttttttt	3549
atcggcaagg aaataaaaat aaatttaggag ggacaatggt gtgtcccaat ctttatacaa	3609
ccaaacctcca caggaaggc aggtcgggga caacaaaaaa acaggcaagg gaaatttttt	3669
aatttgggtt gtcttggtt ctgcataatt tatgcagtaa aacactacac ataaccctt	3729
tagcagtaga gcaatgggtt accgtgtgct tagcttctt tattttattt ttttatcagc	3789
aaagaataaaa taaaataaaa tgagacactt cagggatgtt tcaaccctta tacaaaaccc	3849
aaaaaacaag ttcccttagca ccctaccaac taaggtacc	3888

<210> 17
<211> 118
<212> PRT
<213> Arabidopsis thaliana

<400> 17
Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp
1 5 10 15
Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly
20 25 30
Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
50 55 60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65 70 75 80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
85 90 95
Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
100 105 110
Phe Ser Trp Ile Tyr Lys
115

<210> 18
<211> 169
<212> PRT
<213> Arabidopsis thaliana

<400> 18
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
1 5 10 15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gly Gln His Thr Thr Met Ala Ser Glu Glu Gly Gln Val Ile
50 55 60
Ala Cys His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln Lys Ala Asn
65 70 75 80
Glu Ser Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly
85 90 95
Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala Lys Lys Leu
100 105 110
Pro Asn Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu Lys Ser Val
115 120 125
Ala Ser Asp Trp Ala Ile Gln Ala Met Pro Thr Phe Met Phe Leu Lys
130 135 140
Glu Gly Lys Ile Leu Asp Lys Val Val Gly Ala Lys Lys Asp Glu Leu
145 150 155 160
Gln Ser Thr Ile Ala Lys His Leu Ala
165

<210> 19
<211> 3888
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric: Arabidopsis thioredoxin h gene and oleosin gene derived from
Arabidopsis thaliana fused with phaseolin promotor and phaseolin terminator
derived from Phaseolus vulgaris

<221> CDS
<222> (1555) ... (2249)

<221> CDS
<222> (2490) ... (2658)

<400> 19

ctgcaggaat tcattgtact cccagtatca ttatagtcaa agttttggct ctctcgccgg 60
 tggttttta ccttattta aaggggttt ccacctaaa attctggtat cattctcact 120
 ttacttgtta cttaatttc tcataatctt tggttgaat tatacgcctt ccgcacacgaa 180
 tatccctaca aatttattat ttgttaaaca ttgttcaacc gcataaaattt ttatgaagtc 240
 ccgtctatct ttaatgtagt ctaacatTTT catattgaaa tatataattt acttaatttt 300
 agcggttggta gaaagcataa tgatttattc ttattcttct tcatataaat gttaatata 360
 caatataaac aaattcttta ccttaagaag gatttcccat ttatattttt aaaaatatata 420
 ttatcaaata ttttcaacc acgttaatct cataataata agttgtttca aaagtaataa 480
 aatttaactc cataattttt ttattcgact gatctttaag caacacccag tgacacaact 540
 agccattttt ttcttgaat aaaaaatcc aatttattattt gtatTTTT tatacatgaa 600
 aaatttcacc aaacaatcat ttgttggattt tctgaagcaa gtcatgttat gcaaaaattt 660
 ataattccca tttgacacta cggaagtaac tgaagatctg cttttacatg cgagacacat 720
 cttctaaagt aatttaata atagttacta tattcaagat ttcatatata aataactcaa 780
 tattacttct aaaaaattaa ttagatataa taaaatattt acttttttaa tttaagttt 840
 aattgttcaa ttttgacta ttgatttattt attctactat gtttaattt gtttataagat 900
 agtttaaagt aaatataagt aatgttagtag agtggtagag tggtaaccctt aaccataaaac 960
 tataagattt atggggact aattttcata tatttcttatt tgcttttacc ttcttgggt 1020
 atgttaagttt gtaactggaa ttactgtggg ttgccatggc actctgtgg ttttgggttc 1080
 atgcatggat gtttgcgcaaa gaaaaagaca aagaacaaag aaaaaagaca aaacagagag 1140
 acaaaacgca atcacacaac caactcaat tagtcaactgg ctgatcaaga tcgcccgcgtc 1200
 catgtatgtc taaatggccat gcaaaagcaac acgtgtttaa catgcactt aatggctca 1260
 cccatctcaa cccacacaca aacacatgg cttttcttcc atcatcacca caaccacctg 1320
 tatataattca ttcttcccg ccacctcaat ttcttcaattt caacacacgt caacctgcat 1380
 atgcgtgtca tccccatgccc aaatctccat gcatgttcca accaccttct ctcttatata 1440
 atacctataaa atacctctaa tatcacttcac ttcttcatc atccatccat ccagagtaact 1500
 actactctac tactataata ccccaaccca actcatattc aataactactc tact atg 1557

Met
1

gct tcg gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca tgg		1605	
Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr Trp			
5	10	15	
aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt		1653	
Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val			
20	25	30	
gat ttc acg gct tct tgg tgt gga cca tgg cgt ttc atc gct cca ttc		1701	
Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe			
35	40	45	
ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt		1749	
Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val			
50	55	60	65
gat act gat gaa ttg aag tcg gtg gca agt gat tgg gcg ata cag gcg		1797	
Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala			
70	75	80	
atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt		1845	
Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val			
85	90	95	
gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg		1893	
Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu			
100	105	110	
gct atg gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga		1941	
Ala Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg			
115	120	125	
gac cag tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc		1989	
Asp Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser			
130	135	140	145
gga cga gga tct gac tac tcc aag tct agg cag att gct aaa gct gca		2037	
Gly Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala			

150	155	160	
act gct gtc aca gct ggt tcc ctc ctt gtt ctc tcc agc ctt acc Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr 165	170	175	2085
ctt gtt gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val 180	185	190	2133
atc ttc agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu 195	200	205	2181
atc acc ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr 210	215	220	2229
gtt ttc tct tgg att tac aa gtaagcacac atttatcatc ttacttcata Val Phe Ser Trp Ile Tyr Lys 230			2279
attttgtaca atatgtcat gcatgtgttgc agccagtagc tttggatcaa tttttttgt cgaataacaa atgtacaat aagaaattgc aaattctagg gaacatttgg ttaactaaat acgaaatttg acctagctag cttgaatgtc tctgtgtata tcatctatat aggtaaaatg cttggatata tacctattga ttgtgaatag g tac gca acg gga gag cac cca Tyr Ala Thr Gly Glu His Pro 235			2339 2399 2459 2511
cag gga tca gac aag ttg gac agt gca agg atg aag ttg gga agc aaa Gln Gly Ser Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys 240	245	250	2559
gct cag gat ctg aaa gac aga gct cag tac tac gga cag caa cat act Ala Gln Asp Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr 260	265	270	2607
ggt ggg gaa cat gac cgt gac cgt act cgt ggt ggc cag cac act act Gly Gly His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr 275	280	285	2655
taa gcttaataag tatgaactaa aatgcataat ggtgttaagag ctcatggaga *			2708
gcatggata ttgtatccga ccatgtaca gtataataac tgagctccat ctcacttctt ctatgataaa acaaaggatg ttatgatata ttaacactct atctatgcac cttattgttc tatgataaaat ttccctttat tattataat catctgaatc gtgacggctt atggaatgt tcaaataatg caaaaaacaaa tgtgtactat aagactttct aaacaattct aacttttagca tttgtaacgaa gacataagtg ttaagaagac atacaatta taatggaga agtttgctc catttatata ttatataatcccacttattg tattatataat ggtatgttaag gagacataac aattataaaag agagaagttt gtatccattt atatattata tactaccat ttatataat tacttatcca cttatataat gtctttataat ggtttagcc atgatatttc taatatttt gttgatatgt atatgaaagg gtactatttgc aactcttta ctctgtataa aggttggatc atccttaaaat tgggtctatt taattttatt gctcttaca gataaaaaaa aaattatgag ttggttttagt aaaatattga aggattttaa atataataatataataataatcatataata tatgtatata aatttattat aatataacat ttatctataa aaaagtaaat attgtatata atctataacaa tcgttagcc ttgctggacg actctcaatt atttaaacga gagtaaacat atttgacttt ttgggttattt aacaaattat tatttaacac tatatgaaat ttttttttt tatcgcaag gaaataaaat taaatttagga gggacaatgg tttgtcccaat tccttata accaacttcc acagggaaatg caggtcgcccc acaacaaaaaa aacaggcaag ggaaatttt taatttgggt tttgttttgc gctgcataat ttatgcagta aaacactaca cataaccctt tttagcactg agcaatggtt gaccgtgtgc tttagcttctt ttatattttt tttttatc caaagaataaa ataaaataaa atgagacact tcagggatgt ttcaaccctt atacaaaacc ccaaaaacaa gttcccttagc accctaccaa ctaaggtacc			2768 2828 2888 2948 3008 3068 3128 3188 3248 3308 3368 3428 3488 3548 3608 3668 3728 3788 3848 3888

<210> 20

<211> 232
<212> PRT
<213> Arabidopsis thaliana

<400> 20
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
1 5 10 15
Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
50 55 60
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65 70 75 80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
100 105 110
Leu Ala Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly
115 120 125
Arg Asp Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met
130 135 140
Ser Gly Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala
145 150 155 160
Ala Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu
165 170 175
Thr Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu
180 185 190
Val Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu
195 200 205
Leu Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile
210 215 220
Thr Val Phe Ser Trp Ile Tyr Lys
225 230

<210> 21
<211> 55
<212> PRT
<213> Artificial Sequence

<220>
<223> Arabidopsis thaliana

<400> 21
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
1 5 10 15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gly Gln His Thr Thr
50 55

<210> 22
<211> 3787
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric: Arabidopsis thioredoxin-reductase gene and oleosin gene derived from *Arabidopsis thaliana* fused with phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*

<221> CDS
<222> (1555) ... (2556)

<400> 22
ctgcaggaaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
tgggtttta cctctattta aaggggttt ccacctaataaa attctggtat cattctcact 120
ttactgtta cttaatttc tcataatctt tggttgaataat tatacagctt ccgcacacg 180
tatccctaca aatttattat ttgttaaaca tttcaaacc gcataaaaatt ttatgaagtc 240
ccgtctatct ttaatgttagt ctaacatccc cataattgaaa tatataattt acttaatttt 300
agcggttggta gaaagcataa tgatttattt ttattcttct tcatataaaat gtttaatata 360
caatataaaac aaattttta ccttaagaag gattcccat ttatatttt aaaaatataat 420
ttatcaaata ttttcaacc acgtaaatct cataataata agttgttca aaagtaataa 480
aatttaactc cataatttt ttattcgact gatcttaaag caacacccag tgacacaact 540
agccattttt ttcttgaaat aaaaaatcc aatttatttattt gtatttttt tatacaatga 600
aaatttcacc aaacaatcat ttgttggatt tctgaagcaa gtcatgttat gcaaaattct 660
ataattccca tttgacacta cggaagtaac tgaagatctg ctttacatg cgagacacat 720
cttctaaagt aattttaata atagttacta tattcaagat ttcatatatac aaataactcaa 780
tattactttaa aaaaaattaa tttagatataa tttaaatattt acttttttaa ttttaagttt 840
aattgttggaa tttgtgacta ttgatttattt attctactat gtttaatttgg tttttagat 900
agtttaaagt aaatataaagt aatgttagtag agtggtagag ttttaccctttaa aaccataaaac 960
tataagattt atgggtggact aattttcata tatttcttattt tgcttttacc ttttcttgg 1020
atgttaagtcc gtaactggaa ttactgtggg ttgccatggc actctgtgg ttttgggtc 1080
atgcattggat gcttgcgcaaa gaaaaagaca aagaacaaag aaaaaagaca aaacagagag 1140
acaaaacgca atcacacaac caactcaaat tagtcaactgg ctgatcaaga tcgccgcgtc 1200
catgtatgtc taaatgccccat gcaaagcaac acgtgtttaa catgcacttt aaatggctca 1260
cccatctcaa cccacacaca aacacatgc cttttcttc atcatcacca caaccacactg 1320
tatatatattca ttctcttccg ccacctcaat ttcttcactt caacacacgt caacctgcat 1380
atgcgtgtca tcccatgccc aaatctccat gcatgttcca accacccttct ctcttatata 1440
atacctataaa atacctctaa tattactcac ttctttcattt atccatccat ccagagtact 1500
actactctac tactataata ccccaaccca actcatattt aataactactc tact atg 1557

Met
1

aat ggt ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc 1605
Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly
5 10 15

cca gcg gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa 1653
Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys
20 25 30

cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt 1701
Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly
35 40 45

caa cta aca acc acc gac gtc gag aat ttc ccc gga ttt cca gaa 1749
Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60 65

ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag 1797
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
70 75 80

cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc 1845
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
85 90 95

tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct 1893
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
100 105 110

gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc 1941
Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe
115 120 125

gtt gga tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc 1989
Val Gly Ser Gly Glu Gly Ser Gly Phe Trp Asn Arg Gly Ile Ser

130	135	140	145	
gct tgc gtc gac gga gct gct ccg ata ttc cgt aac aaa cct Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro 150		155	160	2037
ctt gcg gtg atc ggt gga ggc gat tca gca atg gaa gca aac ttt Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe 165	170	175		2085
ctt aca aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala 180	185	190		2133
ttt aga gcg tct aag att atg cag cag cga gct ttg tct aat cct aag Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys 195	200	205		2181
att gat gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat gga Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly 210	215	220	225	2229
gaa aga gat gtg ctt gga gga ttg aaa gtg aag aat gtg gtt acc gga Glu Arg Asp Val Leu Gly Leu Lys Val Lys Asn Val Val Thr Gly 230	235	240		2277
gat gtt tct gat tta aaa gtt tct gga ttg ttc ttt gct att ggt cat Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His 245	250	255		2325
gag cca gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg gat Glu Pro Ala Thr Lys Phe Leu Asp Gly Val Glu Leu Asp Ser Asp 260	265	270		2373
ggt tat gtt gtc acg aag cct ggt act aca cag act agc gtt ccc gga Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly 275	280	285		2421
gtt ttc gct gcg ggt gat gtt cag gat aag aag tat agg caa gcc atc Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile 290	295	300	305	2469
act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr 310	315	320		2517
tta caa gag att gga tct cag caa ggt aag agt gat tga agcttaataa Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *	325	330		2566
gtatgaacta aaatgcattgt aggtgtaaaga gctcatggag agcatggaat attgttatccg accatgtaac agtataataa ctgagctcca tctcacttct tctatgaata aacaaaggat gttatgatat attaacactc tatctatgc ccttattgtt ctatgataaa ttccctctta ttattataaa tcatctgaat cgtgacgct tatggaatgc ttcaaatagt acaaaaacaa atgtgtacta taagactttc taaacaattc taacttttagc attgtgaacg agacataagt gtaagaaga cataacaatt ataatggaag aagttgtct ccatttatatt attatataatt accacttat gtattatatt aggatgttaa ggagacataa caattataaa gagagaagtt tgtatccatt tatattattt atactacca ttatatttattt atacttatcc acttattttaa tgtcttata aggttgatc catgatattt ctaatatttt agttgatatg tatatgaaag gtaactattt gaactctctt actctgtata aagttggat catccttaaa gtgggtctat ttaatttat tgcttcttac agataaaaaaa aaaattatga gttggtttga taaaatattt aaggatttaa aataataata aataataat aacatataat atatgtatata aatatttatta taatataaca ttatctata aaaaagtaaa tattgtcata aatctatata atcgtttagc cttgctggac gactctcaat tatttaaacg agagtaaaca tatttgactt ttgggttatt taacaaatta ttatctaaca ctatgtaaa tttttttttt ttagccaa gggaaataaaa ttaatttagg agggacaatg gtgtgtccca atccttatac aaccaacttc cacaggaagg tcaggtcggg gacaacaaaaaa aaacaggcaa gggaaatttt ttaatttggg ttgtcttgc 3586		2626 2686 2746 2806 2866 2926 2986 3046 3106 3166 3226 3286 3346 3406 3466 3526		

tgctgcataa tttatgcagt aaaacactac acataaccct ttttagcagta gagcaatgg 3646
tgaccgtgtg cttagcttct ttatatttat ttttttatca gcaaagaata aataaaaataa 3706
aatgagacac ttcaggatg ttcaaccct tataaaaaac cccaaaaaca agtttcctag 3766
caccctacca actaaggta c 3787

<210> 23
<211> 333
<212> PRT
<213> Arabidopsis thaliana

<400> 23
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser
1 5 10 15
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
20 25 30
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
35 40 45
Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
50 55 60
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
65 70 75 80
Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
85 90 95
Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
100 105 110
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
115 120 125
Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
130 135 140
Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys
145 150 155 160
Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn
165 170 175
Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp
180 185 190
Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro
195 200 205
Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp
210 215 220
Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr
225 230 235 240
Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly
245 250 255
His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser
260 265 270
Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro
275 280 285
Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala
290 295 300
Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His
305 310 315 320
Tyr Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp
325 330

<210> 24
<211> 4546
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1555) ... (1907)

<221> CDS
<222> (2148) ... (3315)

<223> Chimeric: *Arabidopsis oleosin* and thioredoxin-reductase gene derived from *Arabidopsis thaliana* fused with phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*.

<400> 24

ctgcaggaaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
tggttttta cctctattta aaggggtttt ccacctaaaa attctgttat cattctcact 120
ttacttgtta cttaatttc tcataatctt tggttgaat tatacagctt ccgcacacga 180
tatccctaca aatttattat ttgttaaaca tttcaaacc gcataaaaatt ttagaagtc 240
ccgtctatct ttaatgttagt ctaacattt catattgaaa tatataattt acttaatttt 300
agcgttgta gaaagcataa tgatttattc ttattcttct tcatataaat gttaatata 360
caatataaac aaattctta ccttaagaag gattcccat ttatatttt aaaaatatata 420
ttatcaaata ttttcaacc acgtaaatct cataataata agttgttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaag caacaccagg tgacacaact 540
agccattttt ttcttgaat aaaaaaatcc aattattcatt gtatttttt tatacaatga 600
aaatttcacc aaacaatcat ttgttgatt tctgaagcaa gtcatgttat gcaaaattct 660
ataattccca tttgacacta cggaagtaac tgaagatctg cttttacatg cgagacacat 720
cttctaaagt aatttaata atagttacta tattcaagat ttcatatc aataactcaa 780
tattacttct aaaaaattaa ttagatataa tttaaatatt acttttttaa tttttagttt 840
aatttgtgaa tttgtgacta ttgatttatt attctactat gtttaattt gttttagat 900
agtttaaagt aaataataat aatgttagtag agtggtagag tggtaacccta aaccataaaac 960
tataagattt atggtgact aattttcata tatttcttatt tgcttttacc ttttcttgg 1020
atgttaagtcc gtaactggaa ttactgtggg ttgccatggc actctgtggc cttttgggtc 1080
atgcattggat gcttgcgaa gaaaaagaca aagaacaaag aaaaaagaca aaacagagag 1140
acaaaacgca atcacacaac caactcaaat tagtcactgg ctgatcaaga tcgcccgcgtc 1200
catgtatgtc taaatgccccat gcaaaagcaac acgtgcttacatgacttttacc 1260
cccatctcaa cccacacaca aacacatggc cttttcttc atcatcacca caaccacctg 1320
tatataattca ttctcttccg ccacctcaat ttcttcaactt caacacacgt caacctgcat 1380
atgcgtgtca tccccatggcc aatatctccat gcatgttcca accaccccttct ctcttatata 1440
atacctataaa atacctctaa tattcaacttccat gcatgttcca atccatccat ccagactact 1500
actactctac tactataata ccccaaccca actcatatttca aataactactc tact atg 1557
Met
1

gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1605
Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
5 10 15

tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1653
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
20 25 30

gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1701
Gly Ser Asp Tyr Ser, Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
35 40 45

gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1749
Val Thr Ala Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
50 55 60 65

gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1797
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
70 75 80

agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1845
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
85 90 95

ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1893
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
100 105 110

tct tgg att tac aa gtaaggcacac atttatcatc ttacttcata attttgtca 1947
Ser Trp Ile Tyr Lys
115

atatgtgcat gcatgtgttg agccagtagc tttggatcaa ttttttggt cgaataacaa 2007

atgtaacaat aagaaattgc aaattctagg gaacatttg ttaactaaat acgaaatttg 2067
acctagctag cttgaatgtg tctgtgtata tcatastat aggtaaaatg ctggtatga 2127
tacctattga ttgtaatag g tac gca acg gga gag cac cca cag gga tca 2178
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat 2226
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp
130 135 140

ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa 2274
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu
145 150 155 160

cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt 2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly
165 170 175

ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg 2370
Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala
180 185 190

gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa cct ctt 2418
Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu
195 200 205

ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt caa cta 2466
Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly Gln Leu
210 215 220

aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca gaa ggt att 2514
Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile
225 230 235 240

ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag cga ttc 2562
Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe
245 250 255

ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc tct tcg 2610
Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe Ser Ser
260 265 270

aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct gac gct 2658
Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala Asp Ala
275 280 285

gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc gtt gga 2706
Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe Val Gly
290 295 300

tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc gct tgt 2754
Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile Ser Ala Cys
305 310 315 320

gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct ctt gcg 2802
Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro Leu Ala
325 330 335

gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt ctt aca 2850
Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe Leu Thr
340 345 350

aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct ttt aga 2898
Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala Phe Arg
355 360 365

gcg tct aag att atg cag cag gct ttg tct aat cct aag att gat 2946

Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys Ile Asp			
370	375	380	
gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat gga gaa aga			2994
Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly Glu Arg			
385	390	395	400
gat gtg ctt gga gga ttg aaa gtg aag aat gtg gtt acc gga gat gtt			3042
Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly Asp Val			
405	410	415	
tct gat tta aaa gtt tct gga ttg ttc ttt gct att ggt cat gag cca			3090
Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His Glu Pro			
420	425	430	
gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg gat ggt tat			3138
Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp Gly Tyr			
435	440	445	
gtt gtc acg aag cct ggt act aca cag act agc gtt ccc gga gtt ttc			3186
Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly Val Phe			
450	455	460	
gct gcg ggt gat gtt cag gat aag aag tat agg caa gcc atc act gct			3234
Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile Thr Ala			
465	470	475	480
gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac tta caa			3282
Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr Leu Gln			
485	490	495	
gag att gga tct cag caa ggt aag agt gat tga agcttaataa gtatgaacta			3335
Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *			
500	505		
aaatgcatgt aggtgtaaaga gctcatggag agcatggaaat ttgttatccg accatgtaac 3395			
agtataataa ctgagctcca tctcacttct tctatgaata aacaaaggat gttatgatat 3455			
attaacactc tatctatgca ctttattgtt ctatgataaa ttcccttta ttattataaa 3515			
tcatctgaat cgtgacggct tatggaatgc ttcaaatagt aaaaaaacaat atgtgtacta 3575			
taagactttc taaaacaattc taacttttagc attgtgaacg agacataagt gtaagaaga 3635			
cataacaattt ataattgaaag aagtttgctt ccatttatattt attatattt accacttat 3695			
gtatttatattt aggatgttaa ggagacataa caattataaa gagagaagtt tgatccatt 3755			
tatattattt atactaccca ttatattt atacttatcc acttatttataa tgctttata 3815			
agtttgatcc catgatattt ttaattttt agttgatattt tataatggaaag ggtactattt 3875			
gaactctctt actctgtata aaggttggat catccttaaa gtgggtctat ttaattttat 3935			
tgcttcttac agataaaaaaa aaaattatga gttggtttga taaaatattt aaggatttaa 3995			
aataataataa aataataataat aacatataat atatgtatataa aaatttattt taatataaca 4055			
tttatctata aaaaagtaaa tattgtcata aatctataaca atcggttagc ctggctggac 4115			
gactctcaat tatttaaacg agagtaaaca tatttgactt ttgggttatt taacaaattta 4175			
ttattnaaca cttatgaaa tttttttttt ttatcgccaa ggaaataaaaa tttaatttagg 4235			
agggacaatg gtgtgtccca atccttatac aaccaacttc cacaggaagg tcaggtcgaa 4295			
gacaacaaaaaa aaacaggcaa gggaaatttt ttaatttggg ttgtctgtt tgctgcataa 4355			
tttatgcagt aaaacactac acataaccct tttagcgtt gacaaatggg tgaccgtgtg 4415			
cttagcttct ttattnatca gcaagaataa aataaaataa aatgagacac 4475			
ttcagggtatc ttcaaccct tataaaaaac cccaaaaaca agtttccttag caccctacca 4535			
actaaggta c			4546

<210> 25

<211> 118

<212> PRT

<213> Arabidopsis thaliana

<400> 25

Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp			
1	5	10	15
Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly			
20	25	30	

Arg	Gly	Ser	Asp	Tyr	Ser	Lys	Ser	Arg	Gln	Ile	Ala	Lys	Ala	Ala	Thr
35						40						45			
Ala	Val	Thr	Ala	Gly	Gly	Ser	Leu	Leu	Val	Leu	Ser	Ser	Leu	Thr	Leu
50						55					60				
Val	Gly	Thr	Val	Ile	Ala	Leu	Thr	Val	Ala	Thr	Pro	Leu	Leu	Val	Ile
65						70				75		80			
Phe	Ser	Pro	Ile	Leu	Val	Pro	Ala	Leu	Ile	Thr	Val	Ala	Leu	Ile	
						85				90		95			
Thr	Gly	Phe	Leu	Ser	Ser	Gly	Gly	Phe	Gly	Ile	Ala	Ala	Ile	Thr	Val
						100				105		110			
Phe	Ser	Trp	Ile	Tyr	Lys										
						115									

<210> 26
<211> 388
<212> PRT
<213> Arabidopsis thaliana

<400>	26															
Tyr	Ala	Thr	Gly	Glu	His	Pro	Gln	Gly	Ser	Asp	Lys	Leu	Asp	Ser	Ala	
1						5				10				15		
Arg	Met	Lys	Leu	Gly	Ser	Lys	Ala	Gln	Asp	Leu	Lys	Asp	Arg	Ala	Gln	
						20				25			30			
Tyr	Tyr	Gly	Gln	Gln	His	Thr	Gly	Gly	Glu	His	Asp	Arg	Asp	Arg	Thr	
						35				40		45				
Arg	Gly	Gly	Gln	Gln	His	Thr	Thr	Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr
						50				55		60				
Arg	Leu	Cys	Ile	Val	Gly	Ser	Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	
65						70				75			80			
Tyr	Ala	Ala	Arg	Ala	Glu	Leu	Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	
						85				90			95			
Ala	Asn	Asp	Ile	Ala	Pro	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Asp	Val		
						100				105		110				
Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	
						115				120		125				
Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	
						130				135		140				
Glu	Thr	Val	Thr	Lys	Val	Asp	Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	
145						150				155			160			
Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	
						165				170			175			
Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly	
						180				185			190			
Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	
						195				200			205			
Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	
						210				215		220				
Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	
225						230				235			240			
Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	
						245				250			255			
Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	
						260				265		270				
Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	
						275				280		285				
Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	
						290				295		300				
Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	
305						310				315			320			
Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	
						325				330			335			
Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	
						340				345		350				
Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	
						355				360		365				
Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	

370
Gly Lys Ser Asp
385

375

380

<210> 27
<211> 4545
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric: *Arabidopsis thioredoxin-reductase* and *oleosin* gene derived from *arabidopsis thaliana* fused with *phaseolin* promotor and *phaseolin* terminator derived from *Phaseolus vulgaris*.

<221> CDS
<222> (1555) ... (2906)

<221> CDS
<222> (3147) ... (3315)

<400> 27
ctgcaggaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
tggttttta cctctattta aaggggttt ccacctaata attctggtat cattctact 120
ttacttgttta cttaatttc tcataatctt tggttgaat ttcacgctt cccgacacga 180
tatccctaca aatttattat ttgttaaaca ttttcaaacc gcataaaatt ttatgaagtc 240
ccgtctatct ttaatgttagt ctaacatattt catattgaaa tatataattt acttaattt 300
agcgttggtt gaaagcataa tgatttattt ttattcttct tcatataaat gtttaatata 360
caatataaac aaattttta ccttaagaag gatttcccat ttatatttt aaaaatat 420
ttatcaataa ttttcaacc acgttaaatct cataataata agttgttca aaagtaataa 480
aatttaactc cataattttt ttatcgact gatcttaaag caacacccag tgacacaact 540
agccattttt ttcttgaat aaaaaatcc aatttattt gtatttttt tatacatga 600
aaatttcacc aaacaatcat ttgttgatt tctgaagcaa gtcatgttat gcaaaattct 660
ataattccca ttgacacata cggaagtaac tgaagatctg cttttacatg cgagacacat 720
cttctaaagt aatttaata atagttacta tattcaagat ttcatatata aaataactcaa 780
tattactct aaaaaattaa ttagatataa taaaatattt actttttttt ttttaagttt 840
aattgttcaa ttgttgacta ttgattttt attctactat gtttaattt gtttataagat 900
agtttaaagt aaatataagt aatgttagtag agtggtagt gtttacccca aaccataaaac 960
tataagattt atgggtggact aattttcata tatttcttatt tgcttttacc ttttcttgg 1020
atgttaagtcc gtaactggaa ttactgtggg ttgccatggc actctgtggc cttttgggttc 1080
atgcattggat gcttgcgcaaa gaaaagaca aagaacaaag aaaaagaca aaacagagag 1140
acaaaacgcac atcacacaaac caactcaaat tagtcaactgg ctgatcaaga tcgcgcgtc 1200
catgtatgtc taaatgccc gcaagcaac acgtgcttacatgcactttt aaatggctca 1260
cccatctca cccacacaca aacacattgc ctttttcttcc atcatcacca caaccacctg 1320
tatataattca ttcttcccg ccacctcaat ttcttcaattt caacacacgt caacctgcat 1380
atgcgtgtca tccccatgccc aaatctccat gcatgttcca accaccttct ctcttatata 1440
atacctataaa atacctctaa tatcaactcac ttcttcatc atccatccat ccagagtact 1500
actactctac tactataata ccccaaccca actcatattt aataactactc tact atg 1557
Met
1

aat ggt ctc gaa act cac aac aca agg ctc tgg atc gta gga agt ggc 1605
Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly
5 10 15

ccg gca ccc acg gcg gcg att tac gca gct agg gct gaa ctt aaa 1653
Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys
20 25 30

cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt 1701
Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly
35 40 45

caa cta aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca gaa 1749
Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60 65

ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag	1797		
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu			
70	75	80	
cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc	1845		
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe			
85	90	95	
tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct	1893		
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala			
100	105	110	
gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc	1941		
Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe			
115	120	125	
gtt gga tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc	1989		
Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile Ser			
130	135	140	145
gct tgt gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct	2037		
Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro			
150	155	160	
ctt gcg gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt	2085		
Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe			
165	170	175	
ctt aca aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct	2133		
Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala			
180	185	190	
ttt aga gcg tct aag att atg cag cag cga gct ttg tct aat cct aag	2181		
Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys			
195	200	205	
att gat gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat gga	2229		
Ile Asp Val Ile Trp Asn Ser Val Val Glu Ala Tyr Gly Asp Gly			
210	215	220	225
gaa aga gat gtg ctt gga gga ttg aaa gtg aag aat gtg gtt acc gga	2277		
Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly			
230	235	240	
gat gtt tct gat tta aaa gtt tct gga ttg ttc ttt gct att ggt cat	2325		
Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His			
245	250	255	
gag cca gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg gat	2373		
Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp			
260	265	270	
ggt tat gtt gtc acg aag cct ggt act aca cag act agc gtt ccc gga	2421		
Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly			
275	280	285	
gtt ttc gct gcg ggt gat gtt cag gat aag tat agg caa gcc atc	2469		
Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile			
290	295	300	305
act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac	2517		
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr			
310	315	320	
tta caa gag att gga tct cag caa ggt aag agt gat atg gcg gat aca	2565		
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp Met Ala Asp Thr			
325	330	335	

gct aga gga acc cat cac gat atc atc ggc aga gac cag tac ccg atg Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln Tyr Pro Met	2613
340 345 350	
atg ggc cga gac cga gac cag tac cag atg tcc gga cga gga tct gac Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg Gly Ser Asp	2661
355 360 365	
tac tcc aag tct agg cag att gct aaa gct gca act gct gtc aca gct Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala Val Thr Ala	2709
370 375 380 385	
ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt gga act gtc Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val Gly Thr Val	2757
390 395 400	
ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc agc cca atc Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe Ser Pro Ile	2805
405 410 415	
ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc ggt ttt ctt Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr Gly Phe Leu	2853
420 425 430	
tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc tct tgg att Ser Ser Gly Gly Ile Ala Ala Ile Thr Val Phe Ser Trp Ile	2901
435 440 445	
tac aa gtaagcacac atttatcatc ttacttcata attttgta atatgtcat Tyr Lys	2956
450	
gcatgtgttgc agccagtagc tttggatcaa ttttttttgt cgaataacaa atgtaacaat aagaaaattgc aaattctagg gaacatttgg ttaactaaat acgaaatttg acctagctag	3016
3076	
cttgaatgtg tctgtgtata tcatctatat aggtaaaatg cttggatata tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca gac aag ttg	3136
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu	3186
455 460	
gac agt gca agg atg aag ttg gga agc aaa gct cag gat ctg aaa gac Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp	3234
465 470 475 480	
aga gct cag tac tac gga cag caa cat act ggt ggg gaa cat gac cgt Arg Ala Gln Tyr Gly Gln Gln His Thr Gly Glu His Asp Arg	3282
485 490 495	
gac cgt act cgt ggt ggc cag cac act act taa gcttaataag tatgaactaa Asp Arg Thr Arg Gly Gly Gln His Thr Thr *	3335
500 505	
aatgcatgtt ggtgttaagag ctcatggaga gcatgaaata ttgtatccga ccatgttaaca gtataataac tgagctccat ctcacttctt ctatgaaata acaaaggatg ttatgatata	3395
3455	
ttaacactt atctatgcac cttattgttc tatgataaat ttccctttat tattataaat catctgaatc gtgacggctt atgaaatgtc tcaaatatg caaaaaacaaa tgtgtactat	3515
3575	
aagactttt aaacaattt aacttttgc ttgtgaacga gacataagtg ttaagaagac ataacaatta taatggaga agttgtctc catttatata ttatatatta cccactttag	3635
3695	
tattatatta ggatgttaag gagacataac aattataaag agagaagttt gtatccatt atattatata tactacccat ttatataat tacttatcca cttatataat gtctttataa	3755
3815	
ggtttgcattt atgatatttc taatattta gttgatatgt atatgaaagg gtactattt aactctctta ctctgtataa aggttggatc atccttaaag tgggtctatt taattttatt	3875
3935	
gcttcttaca gataaaaaaa aaattatgag ttgggttgcattt aaaatattga aggatttaaa ataataataa ataataataa acatataata tatgtatata aatttattt aatataacat	3995
4055	
ttatctataa aaaagtaaat attgtcataa atctatacaa tcgtttagcc ttgctggacg actctcaattt atttaaacga gagtaaacat attgacttt ttgggttattt aacaattat	4115
4175	
tattnaacac tatatgaaat tttttttttt tatcgaccaag gaaataaaaat taaatttaga	4235

gggacaatgg ttgtcccaa tccttataca accaacttcc acaggaaggt caggtcgaaa 4295
acaacaaaaaacaggcaag ggaaattttt taattgggt tgccttggtt gctgcataat 4355
ttatgcagta aaacactaca cataaccctt ttagcagtag agcaatgggtt gaccgtgtgc 4415
ttagtttttttttatccaaatggatgttcaaccctt atacaaaacc caaaaacaa gtttccttagc accctaccaa 4535
ctaaggtacc 4545

<210> 28
<211> 451
<212> PRT
<213> Artificial Sequence

<220>
<223> Arabidopsis thaliana

<400> 28
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser
1 5 10 15
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
20 25 30
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
35 40 45
Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
50 55 60
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
65 70 75 80
Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
85 90 95
Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
100 105 110
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
115 120 125
Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
130 135 140
Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys
145 150 155 160
Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn
165 170 175
Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp
180 185 190
Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro
195 200 205
Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp
210 215 220
Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr
225 230 235 240
Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly
245 250 255
His Glu Pro Ala Thr Lys Phe Leu Asp Gly Val Glu Leu Asp Ser
260 265 270
Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro
275 280 285
Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala
290 295 300
Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His
305 310 315 320
Tyr Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp Met Ala Asp
325 330 335
Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln Tyr Pro
340 345 350
Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg Gly Ser
355 360 365
Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala Val Thr
370 375 380
Ala Gly Gly Ser Leu Leu Ser Ser Leu Thr Leu Val Gly Thr
385 390 395 400
Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe Ser Pro

<210> 29
<211> 55
<212> PRT
<213> Artificial Sequence

<220>
<223> *Arabidopsis thaliana*

```

<400> 29
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
      1           5           10          15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
      20          25          30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
      35          40          45
Arg Gly Gly Gln His Thr Thr
      50          55

```

```
<210> 30
<211> 4922
<212> DNA
<213> Artificial Sequence
```

<220>
<221> CDS
<222> (1555) . . . (1907)

<221> CDS
<222> (2148) . . . (3690)

<223> Chimeric: *Arabidopsis oleosin* gene derived from *arabidopsis thaliana* fused to *MleP* thioredoxin-reductase and thioredoxin gene derived from *Mycobacterium leprae* fused with the phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*

<400> 30
ctgcaggaaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
tggttttta cctctattta aagggggttt ccacctaaaa attctggtat cattctcact 120
ttacttgta ctttaatttc tcataatctt tggttgaat tatcacgctt ccgcacacaga 180
tatccctaca aatttattat ttgttaaaca ttttcaaacc gcataaaattt ttatgaagtc 240
ccgtctatct ttaatgttagt ctaacattt catattgaaa tatataattt acttaatttt 300
agcgttggta gaaagcataa tgatttattc ttattcttc tcataataat gttaatata 360
caatataaac aaattctta ccttaagaag gatttcccat ttatataattt aaaaatataat 420
ttatcaataa ttttcaacc acgttaatct cataataata agtttttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaaag caacacccag tgacacaact 540
agccattttt ttctttaaat aaaaaaatcc aatttatcatt gtatttttt tatacaatgaa 600
aaatttcacc aaacaatcat ttgtggatt tctgaagcaa gtcatgttat gcaaaaattct 660
ataattccca ttgacacta cggaagtaac tgaagatctg cttttacatg cgagacacat 720
cttctaaagt aattttata atagttacta tattcaagat ttcatatatc aaatactcaa 780
tattacttct aaaaaattaa ttagatataa tttaaaatatt acttttttaa tttaagtt 840
aattgttggaa ttgttgacta ttgatttattt attctactat gtttaatttg tttatagat 900
agtttaaagt aaatataagt aatgttagtag agtgttagag tgttacccta aaccataaaac 960
tataagattt atgtggact aattttcata tattttcttata tgcttttacc ttttcttggt 1020
atgttaagtcc gtaactggaa ttactgtggg ttgccccatggc actctgtggat cttttgggtc 1080
atgcatggat gcttgcgcaa gaaaaagaca aagaacaaag aaaaagaca aaacagagag 1140
acaaaacgcgca atcacacaac caactcaaata tagtcaactgg ctgatcaaga tcgcccgcgtc 1200

catgtatgtc taaatgccat gcaaagcaac acgtgcttaa catgcacttt aaatggctca	1260
cccatctcaa cccacacaca aacacatgc cttttcttc atcatcacca caaccacctg	1320
tatataattca ttcttcttccg ccacctcaat ttcttcaatttccat caacacacgt caacactgcat	1380
atgcgtgtca tcccattgccc aaatctccat gcatgttcca accaccttct ctcttatata	1440
atacctataa atacctctaa tatcactcac ttcttcatc atccatccat ccagagtact	1500
actactctac tactataata ccccaaccca actcatattc aatactactc tact atg	1557
Met 1	
 gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag	1605
Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln	
5 10 15	
 tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga	1653
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg	
20 25 30	
 gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct	1701
Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala	
35 40 45	
 gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt	1749
Val Thr Ala Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val	
50 55 60 65	
 gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc	1797
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe	
70 75 80	
 agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc	1845
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr	
85 90 95	
 ggg ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc	1893
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe	
100 105 110	
 tct tgg att tac aa gtaaggcacac atttatcatc ttacttcata attttgtca	1947
Ser Trp Ile Tyr Lys	
115	
 atatgtgcat gcattgtgttgc agccagtagc ttggatcaa tttttttgtt cgaataacaa	2007
atgttaacaat aagaatttgc aaattctagg gaacatttgg ttaactaaat acgaaatttg	2067
accttagctag cttgaatgtg tctgtgtata tcattatata aggtaaaatg cttggatgt	2127
tacccatttgc ttgtgaatag g tac gca acg gga gag cac cca cag gga tca	2178
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser	
120 125	
 gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat	2226
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp	
130 135 140	
 ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa	2274
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln His Thr Gly Gly Glu	
145 150 155 160	
 cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aac acc	2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Thr	
165 170 175	
 act cct tct gcg cat gag acg ata cac gaa gtg atc gtt att ggc tcc	2370
Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val Ile Gly Ser	
180 185 190	
 ggg cca gca ggc tac act gct gcc ctg tac gcc gct cgt gca cag cta	2418
Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg Ala Gln Leu	
195 200 205	

aca ccg ctg gta ttt gag ggt acc tca ttc ggc ggc gcg ctg atg acc		2466
Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala Leu Met Thr		
210	215	220
acc acc gag gtg gaa aac tac cca ggt ttt cgc aac ggc ata acc ggc		2514
Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly Ile Thr Gly		
225	230	235
240		
ccg gag ttg atg gac gat atg cgt gaa cag gca ctg cga ttc ggc gcg		2562
Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg Phe Gly Ala		
245	250	255
gaa ctg cgg acc gaa gac gtc gag tcg gta tca ttg cgt ggc ccg atc		2610
Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg Gly Pro Ile		
260	265	270
aaa tcg gtc gtc acc gct gaa gga cag act tat cag gcc cga gcc gtc		2658
Lys Ser Val Val Thr Ala Glu Gln Thr Tyr Gln Ala Arg Ala Val		
275	280	285
atc ctc gcc atg ggt acc tcc gtg cgt tat cta cag atc ccc ggc gag		2706
Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile Pro Gly Glu		
290	295	300
caa gaa ttg cta gga cgt ggc gtg agt gca tgc gcg acc tgc gac ggg		2754
Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly		
305	310	315
320		
tcc ttt ttc cgc ggc caa gac att gcc gtc att ggc ggt gga gac tca		2802
Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly Gly Asp Ser		
325	330	335
gcg atg gag gaa gcc ctc ttt ttg acc cgg ttc gcc cgc agc gtc acg		2850
Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg Ser Val Thr		
340	345	350
ctc gtg cac cgc cgc gac gaa ttc cga gct tct aag atc atg ctc ggt		2898
Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile Met Leu Gly		
355	360	365
cgc gcc cgt aac aat gac aag atc aaa ttc atc acc aac cac acc gtg		2946
Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn His Thr Val		
370	375	380
gtc gcg gtg aac ggg tat aca aca gtg acc gga ttg cgg ttg cgt aac		2994
Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg Leu Arg Asn		
385	390	395
400		
acc aca acg gga gag gaa acc acg cta gta gtg acc ggg gtt ttt gtt		3042
Thr Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly Val Phe Val		
405	410	415
gca att ggc cat gaa cca cgt tcc agc ctg gtg agc gat gtc gtc gac		3090
Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp Val Val Asp		
420	425	430
ata gac ccg gat ggc tac gtc ctg gtg aaa gga cgt acg acg agt aca		3138
Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr Thr Ser Thr		
435	440	445
tcg atg gac ggc gtt ttt gcg gcc ggc gac ctg gta gat cgc acc tac		3186
Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp Arg Thr Tyr		
450	455	460
cgg cag gcg atc act gcc gca ggt agt ggc tgt gcc gcc gac atc gac		3234
Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala Ile Asp		

465	470	475	480	
gcc gaa cgt tgg ttg gcg gag cat gcc ggg tca aaa gct aac gaa aca Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala Asn Glu Thr 485		490	495	3282
aca gag gaa act gga gac gtt gac agt acc gac aca acc gat tgg agc Thr Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Asp Trp Ser 500	505		510	3330
act gcg atg act gac gcc aag aac gcc ggg gtc aca ata gaa gtg acc Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile Glu Val Thr 515	520		525	3378
gat gct tcc ttt ttc gca gac gtc tta tcc agt aat aag cct gtg tta Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys Pro Val Leu 530	535		540	3426
gtt gat ttt tgg gca aca tgg tgt gga ccc tgc aag atg gta gcg ccg Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro 545	550		555	3474
gta ctc gaa gag atc gcg tcc gaa caa cga aac cag ctc act gtc gcc Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu Thr Val Ala 565	570		575	3522
aag tta gat gta gac acc aac ccg gaa atg gca gcg gag ttc cag gtc Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu Phe Gln Val 580	585		590	3570
gtg tcg ata ccc aca atg att ctg ttc cag ggt ggc caa cca gta aaa Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gln Pro Val Lys 595	600		605	3618
cgc atc gtt ggc gct aag ggc aaa gca gcg tta cta cgt gac ctt tcc Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg Asp Leu Ser 610	615		620	3666
gac gtg gta cct aac ctc aat taa gcttaata agtatgaact aaaatgcatt Asp Val Val Pro Asn Leu Asn *	625	630		3720
taggtgtaag agctcatgga gagcatgaa tattgtatcc gaccatgtaa cagtataata 3780 actgagctcc atctcaacttc ttctatgaat aaacaaaggaa tgttatgata tattaacact 3840 ctatctatgc accttattgt tctatgataa atttcctctt attattataa atcatctgaa 3900 tcgtgacggc ttatggatg cttcaaataag tacaaaaaca aatgtgtact ataagacttt 3960 ctaaacaatt ctaactttag cattgtgaac gagacataag tgtaagaag acataacaat 4020 tataatggaa gaagttgtc tccattata tattatataat taccactta tgattatata 4080 taggatgtta aggagacata acaattataa agagagaagt ttgtatccat ttatataatta 4140 tatactaccc atttatataat tatacttatac cacttattta atgtctttat aaggtttgat 4200 ccatgatatt tctaataattt tagttgatgat gtatgtaaa gggtactatt tgaactctct 4260 tactctgtat aaaggttgaa tcatccttaa agtgggtcta ttaattttt ttgcttctta 4320 cagataaaaa aaaaattatg agttggttt ataaaaattt gaaggatataaataat 4380 aaataaaaa taacatataa tatatgtata taaattttt ataatataaac atttatctat 4440 aaaaaaatggtaa atattgtcat aaatctatac aatcgtttag ctttgctgga cgactctcaa 4500 ttatattaaac gagagtaaac atatttgact tttgggttat ttaacaattt attatthaac 4560 actatatgaa attttttttt tttatcgca agggaaataaa attaaatttag gagggacaat 4620 ggtgtgtccc aatccttata caaccaactt ccacaggaag gtcaggtcgg ggacaacaaa 4680 aaaacaggca agggaaattt ttaatttgg gttgtcttgt ttgctgcata atttatgcag 4740 taaaacacta cacataaccc ttttagcagt agagcaatgg ttgaccgtgt gcttagcttc 4800 ttttatattta tttttttatc agcaaagaat aaataaaata aaatgagaca cttagggat 4860 gtttcaaccc ttatacaaaa ccccaaaaac aagtttccta gcaccctacc aactaaggta 4920 cc				4922

<210> 31
<211> 118
<212> PRT

<213> Mycobacterium leprae

<400> 31
Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp
1 5 10 15
Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly
20 25 30
Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
50 55 60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65 70 75 80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
85 90 95
Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
100 105 110
Phe Ser Trp Ile Tyr Lys
115

<210> 32

<211> 513

<212> PRT

<213> Mycobacterium leprae

<400> 32
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
1 5 10 15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gln His Thr Thr Met Asn Thr Thr Pro Ser Ala His Glu
50 55 60
Thr Ile His Glu Val Ile Val Ile Gly Ser Gly Pro Ala Gly Tyr Thr
65 70 75 80
Ala Ala Leu Tyr Ala Ala Arg Ala Gln Leu Thr Pro Leu Val Phe Glu
85 90 95
Gly Thr Ser Phe Gly Gly Ala Leu Met Thr Thr Glu Val Glu Asn
100 105 110
Tyr Pro Gly Phe Arg Asn Gly Ile Thr Gly Pro Glu Leu Met Asp Asp
115 120 125
Met Arg Glu Gln Ala Leu Arg Phe Gly Ala Glu Leu Arg Thr Glu Asp
130 135 140
Val Glu Ser Val Ser Leu Arg Gly Pro Ile Lys Ser Val Val Thr Ala
145 150 155 160
Glu Gly Gln Thr Tyr Gln Ala Arg Ala Val Ile Leu Ala Met Gly Thr
165 170 175
Ser Val Arg Tyr Leu Gln Ile Pro Gly Glu Gln Glu Leu Leu Gly Arg
180 185 190
Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Ser Phe Phe Arg Gly Gln
195 200 205
Asp Ile Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Leu
210 215 220
Phe Leu Thr Arg Phe Ala Arg Ser Val Thr Leu Val His Arg Arg Asp
225 230 235 240
Glu Phe Arg Ala Ser Lys Ile Met Leu Gly Arg Ala Arg Asn Asn Asp
245 250 255
Lys Ile Lys Phe Ile Thr Asn His Thr Val Val Ala Val Asn Gly Tyr
260 265 270
Thr Thr Val Thr Gly Leu Arg Leu Arg Asn Thr Thr Gly Glu Glu
275 280 285
Thr Thr Leu Val Val Thr Gly Val Phe Val Ala Ile Gly His Glu Pro
290 295 300
Arg Ser Ser Leu Val Ser Asp Val Val Asp Ile Asp Pro Asp Gly Tyr
305 310 315 320

Val Leu Val Lys Gly Arg Thr Thr Ser Thr Ser Met Asp Gly Val Phe
 325 330 335
 Ala Ala Gly Asp Leu Val Asp Arg Thr Tyr Arg Gln Ala Ile Thr Ala
 340 345 350
 Ala Gly Ser Gly Cys Ala Ala Ala Ile Asp Ala Glu Arg Trp Leu Ala
 355 360 365
 Glu His Ala Gly Ser Lys Ala Asn Glu Thr Thr Glu Glu Thr Gly Asp
 370 375 380
 Val Asp Ser Thr Asp Thr Asp Trp Ser Thr Ala Met Thr Asp Ala
 385 390 395 400
 Lys Asn Ala Gly Val Thr Ile Glu Val Thr Asp Ala Ser Phe Phe Ala
 405 410 415
 Asp Val Leu Ser Ser Asn Lys Pro Val Leu Val Asp Phe Trp Ala Thr
 420 425 430
 Trp Cys Gly Pro Cys Lys Met Val Ala Pro Val Leu Glu Glu Ile Ala
 435 440 445
 Ser Glu Gln Arg Asn Gln Leu Thr Val Ala Lys Leu Asp Val Asp Thr
 450 455 460
 Asn Pro Glu Met Ala Arg Glu Phe Gln Val Val Ser Ile Pro Thr Met
 465 470 475 480
 Ile Leu Phe Gln Gly Gln Pro Val Lys Arg Ile Val Gly Ala Lys
 485 490 495
 Gly Lys Ala Ala Leu Leu Arg Asp Leu Ser Asp Val Val Pro Asn Leu
 500 505 510
 Asn

<210> 33
 <211> 4935
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (1554) ... (1906)

 <221> CDS
 <222> (2147) ... (3701)

<223> Chimeric: *Arabidopsis oleosin* and *thioredoxin-reductase* genes and linker
 derived from *Arabidopsis Thaliana* fused with *phaseolin* promotor and terminator
 derived from *Phaseolus Vulgaris*.

<400> 33
 ctgcaggaat tcattgtact cccagtatca ttatagtgaa agttttggct ctctcgccgg 60
 tggttttta cctctattta aaggggtttt ccacctaaaa attctgttat cattctcact 120
 ttacttgtta cttaatttc tcataatctt tggttgaat tatcacgctt ccgcacacga 180
 tatccctaca aatttattat ttgttaaaca tttcaaacc gcataaaaatt ttatgaagtc 240
 ccgtctatct ttaatgttagt ctaacatccc catattgaaa tatataattt acttaattt 300
 agcggttggta gaaagcataa agatttatcc ttattcttct tcataataat gttaatata 360
 caatataaac aaattcttta ccttaagaag gattccccat ttatatttt aaaaatatat 420
 ttatcaaacc ttttcaacc acgttaatct cataataata agttgttca aaagtaataa 480
 aattttaactc cataatttt ttattcgact gatcttaaag caacaccagg tgacacaact 540
 agccatttt ttcttgaat aaaaaaatcc aatttattt gtatttttt tatacatga 600
 aaatttcacc aaacaatcat ttgtggatt tctgaagcaa gtcatgttat gcaaaattct 660
 ataattccca tttgacacta cggaagtaac tgaagatctg ctttacatg cgagacacat 720
 cttctaaagt aattttaata atagttacta tattcaagat ttcatatatc aaatactcaa 780
 tattacttct aaaaaattaa ttagatataa ttaaaatatt acttttttaa ttttaagttt 840
 aattgttggaa tttgtgacta ttgatttatt attctactat gtttaaattt gtttataat 900
 agtttaaagt aaatataagt aatgttagtag agtgttagag ttttacccta aaccataaac 960
 tataacatcc atgggtggact aattttccata tatttcttat tgcttttacc ttttcttgggt 1020
 atgttaagtcc gtaactagaa ttacagtggg ttgccatggc actctgtggc cttttgggtc 1080
 atgcattgggt cttgcgcag aaaaagacaa agaacaaga aaaaagacaa aacagagaga 1140
 caaaacgcacaa tcacacaacc aactcaaattt agtcaactggc tgatcaagat cggccgcgtcc 1200
 atgtatgtct aaatgcccattt ccaagcaaca cgtgcttaac atgcacttta aatggctcac 1260
 ccatctcaac ccacacacaa acacattgcc ttttcttca tcattcaccac aaccacctgt 1320

atatattcat tctctccgc cacctaatt tcttcacttc aacacacggtc aacctgcata 1380
 tgcgtgtcat cccatgccc aatctccatg catgttccaa ccaccttc tcttatataa 1440
 tacctataaa tacctcta atcactca tcttcatca tccatccatc cagagtacta 1500
 ctactctact actataatac cccaaacccaa ctcataattca atactactct act atg 1556
 Met
 1

gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1604
 Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
 5 10 15

tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1652
 Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
 20 25 30

gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1700
 Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
 35 40 45

gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1748
 Val Thr Ala Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
 50 55 60 65

gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1796
 Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
 70 75 80

agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1844
 Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
 85 90 95

ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1892
 Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
 100 105 110

tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtca 1946
 Ser Trp Ile Tyr Lys
 115

atatgtcat gcatgtgttg agccagtagc tttggatcaa ttttttttgt cgaataacaa 2006
 atgttaacaat aagaattgc aaattctagg gaacatttg ttaactaaat acgaaatttg 2066
 accttagctag cttgaatgtg tctgtgtata tcatactataat aggtaaaatg cttggatata 2126
 tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca 2177
 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
 120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat 2225
 Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp
 130 135 140

ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa 2273
 Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Glu
 145 150 155 160

cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt 2321
 His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly
 165 170 175

ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg 2369
 Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala
 180 185 190

gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa cct ctt 2417
 Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu
 195 200 205

ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt caa cta 2465

Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly	Gly	Gln	Leu		
210					215						220						
aca	acc	acc	acc	gac	gtc	gag	aat	tcc	ccc	gga	ttt	cca	gaa	ggg	att	2513	
Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile		
225					230					235					240		
ctc	gga	gta	gag	ctc	act	gac	aaa	tcc	cgt	aaa	caa	tcg	gag	cga	tcc	2561	
Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu	Arg	Phe		
											245		250		255		
ggt	act	acg	ata	ttt	aca	gag	acg	gtg	acg	aaa	gtc	gat	ttc	tct	tcc	2609	
Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe	Ser	Ser		
											260		265		270		
aaa	ccg	ttt	aag	cta	tcc	aca	gat	tca	aaa	gcc	att	ctc	gct	gac	gct	2657	
Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala		
										275		280		285			
gtg	att	ctc	gct	act	gga	gct	gtg	gct	aag	cgg	ctt	agc	ttc	gtt	gga	2705	
Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly		
										290		295		300			
tct	ggg	gaa	ggg	tct	gga	ggg	gtt	ttc	tgg	aac	cgt	gga	atc	tcc	gct	2753	
Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys		
										305		310		315		320	
gct	gtt	tgc	gac	gga	gct	gct	ccg	ata	ttc	cgt	aac	aaa	cct	ctt	gcg	2801	
Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala		
										325		330		335			
gtg	atc	ggg	gga	ggc	gat	tca	gca	atg	gaa	gca	aac	ttt	ctt	aca		2849	
Val	Ile	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr			
										340		345		350			
aaa	tat	gga	tct	aaa	gtg	tat	ata	atc	cat	agg	aga	gat	gtt	ttt	aga	2897	
Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg		
										355		360		365			
gcg	tct	aag	att	atg	cag	cag	cga	gct	ttg	tct	aat	cct	aag	att	gat	2945	
Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp		
										370		375		380			
gtg	att	tgg	aac	tcg	tct	gtt	gtg	gaa	gct	tat	gga	gat	gga	gaa	aga	2993	
Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg		
										385		390		395		400	
gat	gtg	ctt	gga	gga	ttg	aaa	gtg	aag	aat	gtg	gtt	acc	gga	gat	gtt	3041	
Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val		
										405		410		415			
tct	gat	tta	aaa	gtt	tct	gga	ttg	ttc	ttt	gct	att	ggg	cat	gag	cca	3089	
Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro		
										420		425		430			
gct	acc	aag	ttt	ttg	gat	ggg	ggg	gtt	gag	tta	gat	tcg	gat	ggg	tat	3137	
Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr		
										435		440		445			
gtt	gtc	acg	aag	cct	ggg	act	aca	cag	act	agc	gtt	ccc	gga	gtt	ttc	3185	
Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe		
										450		455		460			
gct	gcg	ggg	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc	atc	act	gct	3233	
Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala		
										465		470		475		480	

gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac tta caa Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr Leu Gln 485 490 495	3281
gag att gct gga tcg aag gct aac gag acc acc gag gaa act gga gat Glu Ile Ala Gly Ser Lys Ala Asn Glu Thr Thr Glu Glu Thr Gly Asp 500 505 510	3329
gtt gac tcg acg gat act acg gat tgg tcg acg gct atg gaa gaa gga Val Asp Ser Thr Asp Thr Asp Trp Ser Thr Ala Met Glu Glu Gly 515 520 525	3377
caa gtg atc gcc tgc cac acc gtt gag aca tgg aac gag cag ctt cag Gln Val Ile Ala Cys His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln 530 535 540	3425
aag gct aat gaa tcc aaa act ott gtg gtg gtt gat ttc acg gct tct Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser 545 550 555 560	3473
tgg tgt gga cca tgt cgt ttc atc gct cca ttc ttt gct gat ttg gct Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala 565 570 575	3521
aag aaa ctt cct aac gtg ctt ttc ctc aag gtt gat act gat gaa ttg Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu 580 585 590	3569
aag tcg gtg gca agt gat tgg gcg ata cag gcg atg cca acc ttc atg Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala Met Pro Thr Phe Met 595 600 605	3617
ttt ttg aag gaa ggg aag att ttg gac aaa gtt gtt gga gcc aag aaa Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val Val Gly Ala Lys Lys 610 615 620	3665
gat gag ctt cag tct acc att gcc aaa cac ttg gct taagcttaaa Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu Ala 625 630 635	3711
taagtatgaa ctaaaaatgca ttaggtgta agagctcatg gagagcatgg aatattgtat ccgaccatgt aacagtataa taactgagct ccacatctact tcttctatga ataaaacaaag gatgttatga tatattaaca ctctatctat gcaccttatt gttctatgtat aaatttcctc ttattattat aaatcatctg aatcgtgacg gcttatggaa tgcttcaaatt agtacaaaaaa caaatgtgta ctataagact ttctaaacaa ttctaacttt agcatttgta acgagacata agtgttaaga agacataaca attataatgg aagaagttt tctccattta tatattatat attacccact tatgtattat attaggatgt taaggagaca taacaattat aaagagagaa gtttgtatcc atttatatat tatataactac ccatttatatt attatactta tccacttatt taatgtctt ataaggttt atccatgata tttctaataat ttagttgat atgtatatga aagggtacta tttgaactct cttactctgt ataaagggtt gatcatcctt aaagtgggtc tatttaattt tattgttct tacagataaa aaaaaaatta tgagttggtt tgataaaata ttgaaggatt taaaataata ataaataata aataacatata aatatatgtat tataaattta ttataatata acatttatct ataaaaaagt aaatattgtc ataaatctat acaatcggtt agccttgctg gacgactctc aattattaa acgagagtaa acatattgtatcgg caagggaaata atthaacaaa ttattattta acatatatgt aaattttttt ttttatacgaa tacaaccaac aaattaaattt aggagggaca atggtgtgtc ccaatccctt tttaattt gggttgtctt aggtcagggtc ggggacaaca aaaaaacagg caagggaaat ttccacacgg 4671 gtttgtcgca taatttatgc agtaaaacac tacacataac ctttttagca gttagagcaat gggtgaccgt gtgttagct tcttttattt tattttttt tcaagcaaga ataaataaaa taaaatgaga cacttcaggg atgtttcaac ctttatacaa aacccaaaa acaagttcc tagcacccta ccaactaagg tacc 4935	3771 3831 3891 3951 4011 4071 4131 4191 4251 4311 4371 4431 4491 4551 4611 4671 4731 4791 4851 4911

<210> 34
<211> 118
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> SITE
<222> (1)...(118)

<400> 34
Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp
1 5 10 15
Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly
20 25 30
Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
50 55 60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65 70 75 80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
85 90 95
Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
100 105 110
Phe Ser Trp Ile Tyr Lys
115

<210> 35
<211> 518
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> SITE
<222> (1)...(55)
<223> oleosin

<221> SITE
<222> (56)...(383)
<223> thioredoxin reductase

<221> SITE
<222> (384)...(406)
<223> linker

<221> SITE
<222> (407)...(518)
<223> thioredoxin

<400> 35
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
1 5 10 15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gly Gln His Thr Thr Met Asn Gly Leu Glu Thr His Asn Thr
50 55 60
Arg Leu Cys Ile Val Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile
65 70 75 80
Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu Leu Phe Glu Gly Trp Met
85 90 95
Ala Asn Asp Ile Ala Pro Gly Gly Gln Leu Thr Thr Thr Asp Val
100 105 110
Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Val Glu Leu Thr
115 120 125
Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe Gly Thr Thr Ile Phe Thr
130 135 140
Glu Thr Val Thr Lys Val Asp Phe Ser Ser Lys Pro Phe Lys Leu Phe
145 150 155 160

Thr Asp Ser Lys Ala Ile Leu Ala Asp Ala Val Ile Leu Ala Thr Gly
 165 170 175
 Ala Val Ala Lys Arg Leu Ser Phe Val Gly Ser Gly Glu Gly Ser Gly
 180 185 190
 Gly Phe Trp Asn Arg Gly Ile Ser Ala Cys Ala Val Cys Asp Gly Ala
 195 200 205
 Ala Pro Ile Phe Arg Asn Lys Pro Leu Ala Val Ile Gly Gly Gly Asp
 210 215 220
 Ser Ala Met Glu Glu Ala Asn Phe Leu Thr Lys Tyr Gly Ser Lys Val
 225 230 235 240
 Tyr Ile Ile His Arg Arg Asp Ala Phe Arg Ala Ser Lys Ile Met Gln
 245 250 255
 Gln Arg Ala Leu Ser Asn Pro Lys Ile Asp Val Ile Trp Asn Ser Ser
 260 265 270
 Val Val Glu Ala Tyr Gly Asp Gly Glu Arg Asp Val Leu Gly Gly Leu
 275 280 285
 Lys Val Lys Asn Val Val Thr Gly Asp Val Ser Asp Leu Lys Val Ser
 290 295 300
 Gly Leu Phe Phe Ala Ile Gly His Glu Pro Ala Thr Lys Phe Leu Asp
 305 310 315 320
 Gly Gly Val Glu Leu Asp Ser Asp Gly Tyr Val Val Thr Lys Pro Gly
 325 330 335
 Thr Thr Gln Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln
 340 345 350
 Asp Lys Lys Tyr Arg Gln Ala Ile Thr Ala Ala Gly Thr Gly Cys Met
 355 360 365
 Ala Ala Leu Asp Ala Glu His Tyr Leu Gln Glu Ile Ala Gly Ser Lys
 370 375 380
 Ala Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr
 385 390 395 400
 Thr Asp Trp Ser Thr Ala Met Glu Glu Gly Gln Val Ile Ala Cys His
 405 410 415
 Thr Val Glu Thr Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys
 420 425 430
 Thr Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg
 435 440 445
 Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val
 450 455 460
 Leu Phe Leu Lys Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp
 465 470 475 480
 Trp Ala Ile Gln Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys
 485 490 495
 Ile Leu Asp Lys Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr
 500 505 510
 Ile Ala Lys His Leu Ala
 515

<210> 36
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 36
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala

100	105	110
Arg Ala Val Ile Leu Ala Met Gly	Thr Ser Val Arg Tyr	Leu Gln Ile
115	120	125
Pro Gly Glu Gln Glu Leu Leu Gly	Arg Gly Val Ser Ala Cys Ala Thr	
130	135	140
Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp	Ile Ala Val Ile Gly Gly	
145	150	155
Gly Asp Ser Ala Met Glu Glu Ala Leu Phe	Leu Thr Arg Phe Ala Arg	
165	170	175
Ser Val Thr Leu Val His Arg Arg Asp	Glu Phe Arg Ala Ser Lys Ile	
180	185	190
Met Leu Gly Arg Ala Arg Asn Asn Asp	Lys Ile Lys Phe Ile Thr Asn	
195	200	205
His Thr Val Val Ala Val Asn Gly	Tyr Thr Thr Val Thr Gly Leu Arg	
210	215	220
Leu Arg Asn Thr Thr Gly Glu Glu Thr	Thr Leu Val Val Thr Gly	
225	230	235
Val Phe Val Ala Ile Gly His Glu Pro	Arg Ser Ser Leu Val Ser Asp	
245	250	255
Val Val Asp Ile Asp Pro Asp Gly	Tyr Val Leu Val Lys Gly Arg Thr	
260	265	270
Thr Ser Thr Ser Met Asp Gly Val Phe	Ala Ala Gly Asp Leu Val Asp	
275	280	285
Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly	Ser Gly Cys Ala Ala	
290	295	300
Ala Ile Asp Ala Glu Arg Trp	Leu Ala Glu His Ala Gly Ser Lys Ala	
305	310	315
Asn Glu Thr Thr Glu Glu Thr Gly Asp	Val Asp Ser Thr Asp Thr Thr	
325	330	335
Asp Trp Ser Thr Ala Met Thr Asp Ala	Lys Asn Ala Gly Val Thr Ile	
340	345	350
Glu Val Thr Asp Ala Ser Phe	Phe Ala Asp Val Leu Ser Ser Asn Lys	
355	360	365
Pro Val Leu Val Asp Phe Trp	Ala Thr Trp Cys Gly Pro Cys Lys Met	
370	375	380
Val Ala Pro Val Leu Glu	Ile Ala Ser Glu Gln Arg Asn Gln Leu	
385	390	395
Thr Val Ala Lys Leu Asp Val Asp	Thr Asn Pro Glu Met Ala Arg Glu	
405	410	415
Phe Gln Val Val Ser Ile Pro Thr	Met Ile Leu Phe Gln Gly Gly Gln	
420	425	430
Pro Val Lys Arg Ile Val Gly Ala	Lys Gly Lys Ala Ala Leu Leu Arg	
435	440	445
Asp Leu Ser Asp Val Val Pro Asn Leu Asn		
450	455	

<210> 37

<211> 471

<212> PRT

<213> Arabidopsis thaliana

<400> 37

Met Asn Gly Leu Glu Thr His Asn Thr Arg	Leu Cys Ile Val Gly Ser		
1	5	10	15
Gly Pro Ala Ala His Thr Ala Ala Ile	Tyr Ala Ala Arg Ala Glu Leu		
20	25	30	
Lys Pro Leu Leu Phe Glu Gly Trp	Met Ala Asn Asp Ile Ala Pro Gly		
35	40	45	
Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe	Pro Gly Phe Pro		
50	55	60	
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp	Lys Phe Arg Lys Gln Ser		
65	70	75	80
Glu Arg Phe Gly Thr Thr Ile Phe Thr	Glu Thr Val Thr Lys Val Asp		
85	90	95	
Phe Ser Ser Lys Pro Phe Lys Leu Phe	Thr Asp Ser Lys Ala Ile Leu		
100	105	110	

Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
 115 120 125
 Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
 130 135 140
 Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys
 145 150 155 160
 Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn
 165 170 175
 Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp
 180 185 190
 Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro
 195 200 205
 Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp
 210 215 220
 Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr
 225 230 235 240
 Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly
 245 250 255
 His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser
 260 265 270
 Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro
 275 280 285
 Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala
 290 295 300
 Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His
 305 310 315 320
 Tyr Leu Gln Glu Ile Ala Gly Ser Lys Ala Asn Glu Thr Thr Glu Glu
 325 330 335
 Thr Gly Asp Val Asp Ser Thr Asp Thr Thr Asp Trp Ser Thr Ala Met
 340 345 350
 Glu Glu Gly Gln Val Ile Ala Cys Glu Glu Gly Gln Val Ile Ala Cys
 355 360 365
 His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser
 370 375 380
 Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys
 385 390 395 400
 Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn
 405 410 415
 Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser
 420 425 430
 Asp Trp Ala Ile Gln Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly
 435 440 445
 Lys Ile Leu Asp Lys Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser
 450 455 460
 Thr Ile Ala Lys His Leu Ala
 465 470

<210> 38
 <211> 345
 <212> DNA
 <213> Arabidopsis thaliana

<220>
 <221> CDS
 <222> (1) ... (345)

<400> 38
 atg gct tcg gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca 48
 Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
 1 5 10 15
 tgg aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg 96
 Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
 20 25 30
 gtt gat ttc acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca 144

Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro			
35	40	45	
ttc ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag			192
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys			
50	55	60	
gtt gat act gat gaa ttg aag tcg gtg gca agt gat tgg gcg ata cag			240
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln			
65	70	75	80
gcg atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa			288
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys			
85	90	95	
gtt gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac			336
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His			
100	105	110	
ttg gct taa			345
Leu Ala *			

<210> 39
<211> 114
<212> PRT
<213> Arabidopsis thaliana

<400> 39			
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr			
1	5	10	15
Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val			
20	25	30	
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro			
35	40	45	
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys			
50	55	60	
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln			
65	70	75	80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys			
85	90	95	
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His			
100	105	110	
Leu Ala			

<210> 40
<211> 999
<212> DNA
<213> Arabidopsis thaliana

<220>			
<221> CDS			
<222> (1)...(999)			
<400> 40			
atg aat ggt ctc gaa act cac aac aca agg ctc tgt atc gta gga agt			
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser			
1	5	10	15
ggc cca gca cac acg gcg gct att tac gca gct agg gct gaa ctt			96
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu			
20	25	30	
aaa cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt			144

Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly
35				40					45						
ggt	caa	ctc	aac	caa	cca	ccg	cgt	gag	aat	ttc	ccc	gga	ttt	cca	gaa
Gly	Gln	Leu	Asn	Gln	Pro	Pro	Arg	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu
50				55						60					
ggt	att	ctc	gga	gta	gag	ctc	act	gac	aaa	ttc	cgt	aaa	caa	tcg	gag
Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu
65				70					75				80		
cga	tcc	ggg	act	acg	ata	ttt	aca	gag	acg	gtg	acg	aaa	gtc	gat	ttc
Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe
85					90					95					
tct	tcg	aaa	ccg	ttt	aag	cta	ttc	aca	gat	tca	aaa	gcc	att	ctc	gct
Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala
100					105					110					
gac	gct	gtg	att	ctc	gct	atc	gga	gct	gtg	gct	aag	tgg	ctt	agc	ttc
Asp	Ala	Val	Ile	Leu	Ala	Ile	Gly	Ala	Val	Ala	Lys	Trp	Leu	Ser	Phe
115					120					125					
gtt	gga	tct	ggg	gaa	gtt	ctc	gga	ggt	ttg	tgg	aac	cgt	gga	atc	tcc
Val	Gly	Ser	Gly	Glu	Val	Leu	Gly	Gly	Leu	Trp	Asn	Arg	Gly	Ile	Ser
130					135					140					
gct	tgt	gct	gtt	tgc	gac	gga	gct	gct	ccg	ata	ttc	cgc	aac	aaa	cct
Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro
145					150					155				160	
ctt	gcg	gtg	atc	ggg	gga	ggc	gat	tct	gca	atg	gaa	gaa	gca	aac	ttt
Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe
165									170				175		
ctt	aca	aaa	tat	gga	tct	aaa	gtg	tat	ata	atc	gat	agg	aga	gat	gct
Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	Asp	Arg	Arg	Asp	Ala
180								185				190			
ttt	aga	gcg	tct	aag	att	atg	cag	cag	cga	gct	ttg	tct	aat	cct	aag
Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys
195								200				205			
att	gat	gtg	att	tgg	aac	tcg	tct	gtt	gtg	gaa	gct	tat	gga	gat	gga
Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly
210					215					220					
gaa	aga	gat	gtg	ctt	gga	gga	ttg	aaa	gtg	aag	aat	gtg	gtt	acc	gga
Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly
225					230					235				240	
gat	gtt	tct	gat	tta	aaa	gtt	tct	gga	ttg	ttc	ttt	gct	att	ggg	cat
Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His
245								250				255			
gag	cca	gct	acc	aag	ttt	ttg	gat	ggg	ggg	gtt	gag	tta	gat	tcg	gat
Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp
260								265				270			
ggt	tat	gtt	gtc	acg	aag	cct	ggg	act	aca	cag	act	agc	gtt	ccc	gga
Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly
275								280				285			
gtt	tcc	gct	gcg	ggg	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc	atc
Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile
290								295				300			

act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac 960
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr
305 310 315 320

tta caa gag att gga tct cag caa ggt aag agt gat tga 999
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *
325 330

<210> 41
<211> 332
<212> PRT
<213> Arabidopsis thaliana

<400> 41
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser
1 5 10 15
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
20 25 30
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
35 40 45
Gly Gln Leu Asn Gln Pro Pro Arg Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
65 70 75 80
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
85 90 95
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
100 105 110
Asp Ala Val Ile Leu Ala Ile Gly Ala Val Ala Lys Trp Leu Ser Phe
115 120 125
Val Gly Ser Gly Glu Val Leu Gly Gly Leu Trp Asn Arg Gly Ile Ser
130 135 140
Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro
145 150 155 160
Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe
165 170 175
Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile Asp Arg Arg Asp Ala
180 185 190
Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys
195 200 205
Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly
210 215 220
Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly
225 230 235 240
Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His
245 250 255
Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp
260 265 270
Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly
275 280 285
Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile
290 295 300
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr
305 310 315 320
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp
325 330

<210> 42
<211> 332
<212> DNA
<213> E. coli

<220>
<221> CDS
<222> (1) ... (332)

<400> 42
 atg agc gat aaa att att cac ctg act gac gac agt ttt gac acg gat 48
 Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
 1 5 10 15
 gta ctc aaa gcg gac ggg gct atc ctc gtt gat ttc tgg gca gag tgg 96
 Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 tgc ggg ccg tgt aaa atg atc gct ccg att ctg gat gaa atc gct gac 144
 Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
 35 40 45
 gaa tat cag ggc aaa ttg acc gtt gcc aaa ctg aac att gac cag aac 192
 Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
 50 55 60
 cca ggt act gcg cct aaa tat ggc atc cgc ggt att ccg act ctg ctg 240
 Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
 65 70 75 80
 ctg ttt aaa aac ggc gaa gtg gcg gca acc aaa gta ggc gca ctg tct 288
 Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 aaa ggt cag ttg aaa gag ttt ctc gac gcc aat ctg gcg taa ta 332
 Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala *
 100 105

<210> 43
 <211> 109
 <212> PRT
 <213> E. coli

<400> 43
 Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
 1 5 10 15
 Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
 35 40 45
 Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
 50 55 60
 Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
 65 70 75 80
 Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
 100 105

<210> 44
 <211> 966
 <212> DNA
 <213> E. coli

<220>
 <221> CDS
 <222> (1)...(966)

<400> 44
 atg ggc acg acc aaa cac agt aaa ctg ctt atc ctg ggt tca ggc ccg 48
 Met Gly Thr Thr Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
 1 5 10 15

gcg gga tac acc gct gtc tac gcg gcg cgc gcc aac ctg caa cct Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro 20 25 30	96
gtg ctg att acc ggc atg gaa aaa ggc ggc caa ctg acc acc acc acg Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr 35 40 45	144
gaa gtg gaa aac tgg cct ggc gat cca aac gat ctg acc ggt ccg tta Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu 50 55 60	192
tta atg gag cgc atg cac gaa cat gcc acc aag ttt gaa act gag atc Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile 65 70 75 80	240
att ttt gat cat atc aac aag gtg gat ctg caa aac cgt ccg ttc cgt Ile Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg 85 90 95	288
ctg aat ggc gat aac ggc gaa tac act tgc gac gcg ctg att att gcc Leu Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ala 100 105 110	336
acc gga gct tct gca cgc tat ctc ggc ctg ccc tct gaa gaa gcc ttt Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe 115 120 125	384
aaa ggc cgt ggg gtt tct gct tgt gca acc tgc gac ggt ttc ttc tat Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr 130 135 140	432
cgc aac cag aaa gtt gcg gtc atc ggc ggc ggc aat acc gcg gtt gaa Arg Asn Gln Lys Val Ala Val Ile Gly Gly Asn Thr Ala Val Glu 145 150 155 160	480
gag gcg ttg tat ctg tct aac atc gct tcg gaa gtg cat ctg att cac Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His 165 170 175	528
cgc cgt gac ggt ttc cgc gcg gaa aaa atc ctc att aag cgc ctg atg Arg Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met 180 185 190	576
gat aaa gtg gag aac ggc aac atc att ctg cac acc aac cgt acg ctg Asp Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu 195 200 205	624
gaa gaa gtg acc ggc gat caa atg ggt gtc act ggc gtt cgt ctg cgc Glu Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg 210 215 220	672
gat acg caa aac agc gat aac atc gag tca ctc gac gtt gcc ggt ctg Asp Thr Gln Asn Ser Asp Asn Ile Glu Ser Leu Asp Val Ala Gly Leu 225 230 235 240	720
ttt gtt gct atc ggt cac agc ccg aat act gcg att ttc gaa ggg cag Phe Val Ala Ile Gly His Ser Pro Asn Thr Ala Ile Phe Glu Gly Gln 245 250 255	768
ctg gaa ctg gaa aac ggc tac atc aaa gta cag tcg ggt att cat ggt Leu Glu Leu Glu Asn Gly Tyr Ile Lys Val Gln Ser Gly Ile His Gly 260 265 270	816
aat gcc acc cag acc agc att cct ggc gtc ttt gcc gca ggc gac gtg Asn Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val 275 280 285	864

atg gat cac att tat cgc cag gcc att act tcg gcc ggt aca ggc tgc	912
Met Asp His Ile Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys	
290 295 300	
atg gca gca ctt gat gcg gaa cgc tac ctc gat ggt tta gct gac gca	960
Met Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Gly Leu Ala Asp Ala	
305 310 315 320	
aaa taa	966
Lys *	

<210> 45
<211> 321
<212> PRT
<213> E. coli

<400> 45	
Met Gly Thr Thr Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro	
1 5 10 15	
Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro	
20 25 30	
Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr	
35 40 45	
Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu	
50 55 60	
Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile	
65 70 75 80	
Ile Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg	
85 90 95	
Leu Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ala	
100 105 110	
Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe	
115 120 125	
Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr	
130 135 140	
Arg Asn Gln Lys Val Ala Val Ile Gly Gly Asn Thr Ala Val Glu	
145 150 155 160	
Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His	
165 170 175	
Arg Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met	
180 185 190	
Asp Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu	
195 200 205	
Glu Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg	
210 215 220	
Asp Thr Gln Asn Ser Asp Asn Ile Glu Ser Leu Asp Val Ala Gly Leu	
225 230 235 240	
Phe Val Ala Ile Gly His Ser Pro Asn Thr Ala Ile Phe Glu Gly Gln	
245 250 255	
Leu Glu Leu Glu Asn Gly Tyr Ile Lys Val Gln Ser Gly Ile His Gly	
260 265 270	
Asn Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val	
275 280 285	
Met Asp His Ile Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys	
290 295 300	
Met Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Gly Leu Ala Asp Ala	
305 310 315 320	
Lys	

<210> 46
<211> 318
<212> DNA

<213> Homo Sapien

<220>

<221> CDS

<222> (1) ... (318)

<400> 46

atg gtg aag cag atc gag agc aag act gct ttt cag gaa gcc ttg gac 48
Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
1 5 10 15

gct gca ggt gat aaa ctt gta gta gtt gac ttc tca gcc acg tgg tgt 96
Ala Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys
20 25 30

ggg cct tgc aaa atg atc aag cct ttc ttt cat tcc ctc tct gaa aag 144
Gly Pro Cys Lys Met Ile Lys Pro Phe His Ser Leu Ser Glu Lys
35 40 45

tat tcc aac gtg ata ttc ctt gaa gta gat gtg gat gac tgt cag gat 192
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
50 55 60

gtt gct tca gag tgt gaa gtc aaa tgc atg cca aca ttc cag ttt ttt 240
Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65 70 75 80

aag aag gga caa aag gtg ggt gaa ttt tct gga gcc aat aag gaa aag 288
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
85 90 95

ctt gaa gcc acc att aat gaa tta gtc taa 318
Leu Glu Ala Thr Ile Asn Glu Leu Val *
100 105

<210> 47

<211> 105

<212> PRT

<213> Homo Sapien

<400> 47

Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
1 5 10 15
Ala Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys
20 25 30
Gly Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
35 40 45
Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
50 55 60
Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
65 70 75 80
Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
85 90 95
Leu Glu Ala Thr Ile Asn Glu Leu Val
100 105

<210> 48

<211> 1494

<212> DNA

<213> Homo sapien

<220>

<221> CDS

<222> (1) ... (1494)

<400> 48
atg aac ggc cct gaa gat ctt ccc aag tcc tat gac tat gac ctt atc 48
Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
1 5 10 15

atc att gga ggt ggc tca gga ggt ctg gca gct gct aag gag cca gcc 96
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Pro Ala
20 25 30

caa tat ggc aag aag gtg atg gtc ctg gac ttt ggc act ccc acc cct 144
Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Gly Thr Pro Thr Pro
35 40 45

ctt gga act aga tgg ggt ctt gga gga aca tgt gtg aat gtg ggt tgc 192
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60

ata cct aaa aaa ctg atg cat caa gca gct ttg tta gga caa gcc ctg 240
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80

caa gac tct cga aat tat gga tgg aaa gtc gag gag aca gtt aag cat 288
Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
85 90 95

gat tgg gac aga atg ata gaa gct gta cag aat cac att ggc tct ttg 336
Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
100 105 110

aat tgg ggc tac cga gta gct ctg cgg gag aaa aaa gtc gtc tat gag 384
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
115 120 125

aat gct tat ggg caa ttt att ggt cct cac agg att aag gca aca aat 432
Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
130 135 140

aat aaa ggc aaa gaa aaa att tat tca gca gag aga ttt ctc att gcc 480
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
145 150 155 160

act ggt gaa aga cca cgt tac ttg ggc atc cct ggt gac aaa gaa tac 528
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
165 170 175

tgc atc agc agt gat gat ctt ttc tcc ttg cct tac tgc ccg ggt aag 576
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
180 185 190

aca ctg gtt gtt gga gca tcc tat gtc gct ttg gag tgc gct gga ttt 624
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
195 200 205

ctt gct ggt att ggt tta gac gtc act gtt atg gtt agg tcc att ctt 672
Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
210 215 220

ctt aga gga ttt gac cag gac atg gcc aac aaa att ggt gaa cac atg 720
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
225 230 235 240

gaa gaa cat ggc atc aag ttt ata aga cag ttc gta cca att aaa gtt 768
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
245 250 255

gaa caa att gaa gca ggg aca cca ggc cga ctc aga gta gta gct cag 816
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln

260	265	270	
tcc acc aat agt gag gaa atc att	gaa gga gaa tat aat acg gtg atg		864
Ser Thr Asn Ser Glu Glu Ile Ile	Glu Gly Glu Tyr Asn Thr Val Met		
275	280	285	
ctg gca ata gga aga gat gct tgc aca aga aaa att ggc tta gaa acc			912
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr			
290	295	300	
gta ggg gtg aag ata aat gaa aag act gga aaa ata cct gtc aca gat			960
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp			
305	310	315	320
gaa gaa cag acc aat gtg cct tac atc tat gcc att ggc gat ata ttg			1008
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu			
325	330	335	
gag gat aag gtg gag ctc acc cca gtt gca atc cag gca gga aga ttg			1056
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu			
340	345	350	
ctg gct cag agg ctc tat gca ggt tcc act gtc aag tgt gac tat gaa			1104
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu			
355	360	365	
aat gtt cca acc act gta ttt act cct ttg gaa tat ggt gct tgt ggc			1152
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly			
370	375	380	
ctt tct gag gag aaa gct gtg gag aag ttt ggg gaa gaa aat att gag			1200
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu			
385	390	395	400
gtt tac cat agt tac ttt tgg cca ttg gaa tgg acg att ccg tca aga			1248
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg			
405	410	415	
gat aac aac aaa tgt tat gca aaa ata atc tgt aat act aaa gac aat			1296
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn			
420	425	430	
gaa cgt gtt gtg ggc ttt cac gta ctg ggt cca aat gct gga gaa gtt			1344
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val			
435	440	445	
aca caa ggc ttt gca gct gcg ctc aaa tgt gga ctg acc aaa aag cag			1392
Thr Gln Gly Phe Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln			
450	455	460	
ctg gac agc aca att gga atc cac cct gtc tgt gca gag gta ttc aca			1440
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr			
465	470	475	480
aca ttg tct gtg acc aag cgc tct ggg gca agc atc ctc cag gct ggc			1488
Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly			
485	490	495	
tgc tga Cys *			1494

<210> 49
<211> 497
<212> PRT
<213> Homo sapien

<400> 49

Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5				10						15	
Ile	Ile	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Pro	Ala	
			20				25					30			
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Gly	Thr	Pro	Thr	Pro
			35				40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
			50				55				60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Gly	Gln	Ala	Leu	
			65				70			75			80		
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
			85				90					95			
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100				105					110			
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
			115				120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
			130				135				140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
			145				150			155			160		
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
			165				170					175			
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180				185					190			
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
			195				200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
			210				215				220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
			225				230			235			240		
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
			245				250					255			
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260				265					270			
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
			275				280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
			290				295				300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
			305				310			315			320		
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
			325				330					335			
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340				345					350			
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
			355				360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
			370				375				380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
			385				390			395			400		
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
			405				410					415			
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420				425					430			
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
			435				440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
			450				455				460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
			465				470				475			480	
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly
			485				490					495			

Cys

<210> 50
 <211> 1377
 <212> DNA
 <213> Mycobacterium leprae

 <220>
 <221> CDS
 <222> (1) ... (1377)

 <400> 50

atg aac acc act cct tct gcg cat gag acg ata cac gaa gtg atc gtt	48
Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val	
1 5 10 15	
att ggc tcc ggt cca gca ggc tac act gct gcc ctg tac gcc gct cgt	96
Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg	
20 25 30	
gca cag cta aca ccg ctg gta ttt gag ggt acc tca ttc ggc ggc gcg	144
Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala	
35 40 45	
ctg atg acc acc acc gag gtg gaa aac tac cca ggt ttt cgc aac ggc	192
Leu Met Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly	
50 55 60	
ata acc ggc ccg gag ttg atg gac gat atg cgt gaa cag gca ctg cga	240
Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg	
65 70 75 80	
ttc ggc gcg gaa ctg cgg acc gaa gac gtc gag tcg gta tca ttg cgt	288
Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg	
85 90 95	
ggc ccg atc aaa tcg gtc gtc acc gct gaa gga cag act tat cag gcc	336
Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala	
100 105 110	
cga gcc gtc atc ctc gcc atg ggt acc tcc gtg cgt tat cta cag atc	384
Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile	
115 120 125	
ccc ggc gag caa gaa ttg cta gga cgt ggc gtg agt gca tgc gcg acc	432
Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr	
130 135 140	
tgc gac ggg tcc ttt ttc cgc ggc caa gac att gcc gtc att ggc ggt	480
Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly	
145 150 155 160	
gga gac tca gcg atg gag gaa gcc ctc ttt ttg acc cgg ttc gcc cgc	528
Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg	
165 170 175	
agc gtc acg ctc gtg cac cgc cgc gac gaa ttc cga gct tct aag atc	576
Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile	
180 185 190	
atg ctc ggt cgc gcc cgt aac aat gac aag atc aaa ttc atc acc aac	624
Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn	
195 200 205	
cac acc gtg gtc gcg gtg aac ggg tat aca aca gtg acc gga ttg cgg	672
His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg	
210 215 220	
ttt cat aac acc aca acq qaa qaq qaa acc acq cta qta qtq acc qqq	720

Leu	Arg	Asn	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly	
225				230				235					240		
gtt	ttt	gtt	gca	att	ggc	cat	gaa	cca	cgt	tcc	agc	ctg	gtg	agc	gat
Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp
				245					250				255		768
gtc	gtc	gac	ata	gac	ccg	gat	ggc	tac	gtc	ctg	gtg	aaa	gga	cgt	acg
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr
				260				265				270			816
acg	agt	aca	tcg	atg	gac	ggc	gtt	ttt	gcg	gcc	ggc	gac	ctg	gta	gat
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp
				275				280				285			864
cgc	acc	tac	cgg	cag	gcg	atc	act	gcc	gca	ggt	agt	ggc	tgt	gcc	gcc
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala
				290			295			300					912
gcc	atc	gac	gcc	gaa	cgt	tgg	ttg	gcf	gag	cat	gcc	ggg	tca	aaa	gct
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala
				305			310			315			320		
aac	gaa	aca	aca	gag	gaa	act	gga	gac	gtt	gac	agt	acc	gac	aca	acc
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr
				325				330				335			1008
gat	tgg	agc	act	gcf	atg	act	gac	gcc	aag	aac	gcc	ggg	gtc	aca	ata
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile
				340			345			350			355		1056
gaa	gtg	acc	gat	gct	tcc	ttt	ttc	gca	gac	gtc	tta	tcc	agt	aat	aag
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys
				355			360			365			370		1104
cct	gtg	tta	gtt	gat	ttt	tgg	gca	aca	tgg	tgt	gga	ccc	tgc	aag	atg
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met
				370			375			380			385		1152
gta	gcf	ccg	gta	ctc	gaa	gag	atc	gcf	tcc	gaa	caa	cga	aac	cag	ctc
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu
				385			390			395			400		
act	gtc	gcc	aag	tta	gat	gta	gac	acc	aac	ccg	gaa	atg	gca	cgc	gag
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu
				405				410				415			1248
ttc	cag	gtc	gtg	tcg	ata	ccc	aca	atg	att	ctg	ttc	cag	ggf	ggc	caa
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln
				420			425			430			435		1296
cca	gta	aaa	cgc	atc	gtt	ggc	gct	aag	ggc	aaa	gca	gcf	tta	cta	cgt
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg
				435			440			445			450		1344
gac	ctt	tcc	gac	gtg	gta	cct	aac	ctc	aat	tag					1377
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn	*					
				450			455								

<210> 51
<211> 458
<212> PRT
<213> Mycobacterium leprae

<400> 51
Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val

1	5	10	15
Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg			
20	25	30	
Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala			
35	40	45	
Leu Met Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly			
50	55	60	
Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg			
65	70	75	80
Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg			
85	90	95	
Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala			
100	105	110	
Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile			
115	120	125	
Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr			
130	135	140	
Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly			
145	150	155	160
Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg			
165	170	175	
Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile			
180	185	190	
Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn			
195	200	205	
His Thr Val Val Ala Val Asn Gly Tyr Thr Val Thr Gly Leu Arg			
210	215	220	
Leu Arg Asn Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly			
225	230	235	240
Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp			
245	250	255	
Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr			
260	265	270	
Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp			
275	280	285	
Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala			
290	295	300	
Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala			
305	310	315	320
Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr			
325	330	335	
Asp Trp Ser Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile			
340	345	350	
Glu Val Thr Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys			
355	360	365	
Pro Val Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met			
370	375	380	
Val Ala Pro Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu			
385	390	395	400
Thr Val Ala Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu			
405	410	415	
Phe Gln Val Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln			
420	425	430	
Pro Val Lys Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg			
435	440	445	
Asp Leu Ser Asp Val Val Pro Asn Leu Asn			
450	455		

<210> 52

<211> 178

<212> PRT

<213> Arabidopsis thaliana

<400> 52

Met Pro Leu Ser Leu Arg Leu Ser Pro Ser Pro Thr Ala Leu Ser Pro
1 5 10 15

Thr Thr Gly Gly Phe Gly Pro Ser Arg Lys Gln Cys Arg Ile Pro Tyr
 20 25 30
 Ser Gly Val Pro Thr Thr Lys Ile Gly Phe Cys Ser Leu Asp Ser Arg
 35 40 45
 Lys Arg Gly Asp Ser Ser Val Val Arg Cys Ser Leu Glu Thr Val Asn
 50 55 60
 Val Ser Val Gly Gln Val Thr Glu Val Asp Lys Asp Thr Phe Trp Pro
 65 70 75 80
 Ile Val Lys Ala Ala Gly Glu Lys Leu Val Val Leu Asp Met Tyr Thr
 85 90 95
 Gln Trp Cys Gly Pro Cys Lys Val Ile Ala Pro Lys Tyr Lys Ala Leu
 100 105 110
 Ser Glu Lys Tyr Asp Asp Val Val Phe Leu Lys Leu Asp Cys Asn Pro
 115 120 125
 Asp Asn Arg Pro Leu Pro Lys Glu Leu Gly Ile Arg Val Val Pro Thr
 130 135 140
 Phe Lys Ile Leu Lys Asn Lys Val Val Lys Glu Val Thr Gly Ala
 145 150 155 160
 Lys Tyr Asp Asp Leu Val Ala Ala Ile Glu Thr Ala Arg Ser Ala Ala
 165 170 175
 Ser Gly

<210> 53
 <211> 185
 <212> PRT
 <213> Arabidopsis thaliana

<400> 53
 Met Pro Leu Ser Leu Arg Leu Ala Pro Ser Pro Thr Ser Phe Arg Tyr
 1 5 10 15
 Ser Pro Ile Thr Ser Thr Gly Ala Gly Phe Ser Pro Val Lys Gln
 20 25 30
 His Cys Arg Ile Pro Asn Ser Gly Val Ala Thr Lys Ile Gly Phe Cys
 35 40 45
 Ser Gly Gly Gly Val Leu Asp Ser Gly Arg Arg Ile Gly Ser Cys
 50 55 60
 Val Val Arg Cys Ser Leu Glu Thr Val Asn Val Thr Val Gly Gln Val
 65 70 75 80
 Thr Glu Val Asp Lys Asp Thr Phe Trp Pro Ile Val Lys Ala Ala Gly
 85 90 95
 Asp Lys Ile Val Leu Asp Met Tyr Thr Gln Trp Cys Gly Pro Cys
 100 105 110
 Lys Val Ile Ala Pro Lys Tyr Lys Glu Leu Ser Glu Lys Tyr Gln Asp
 115 120 125
 Met Val Phe Leu Lys Leu Asp Cys Asn Gln Asp Asn Lys Pro Leu Ala
 130 135 140
 Lys Glu Leu Gly Ile Arg Val Val Pro Thr Phe Lys Ile Leu Lys Asp
 145 150 155 160
 Asn Lys Val Val Lys Glu Val Thr Gly Ala Lys Tyr Glu Asp Leu Leu
 165 170 175
 Ala Ala Ile Glu Ala Ala Arg Ser Gly
 180 185

<210> 54
 <211> 182
 <212> PRT
 <213> Brassica napus

<400> 54
 Met Pro Leu Ser Leu Arg Leu Ala Pro Ser Pro Thr Ala Leu Ser Pro
 1 5 10 15
 Thr Thr Gly Gly Phe Ser Pro Ala Lys Lys Gln Cys Arg Ile Pro Ser
 20 25 30
 Tyr Ser Gly Val Ala Thr Thr Arg Arg Ile Gly Leu Cys Ser Leu

35	40	45
Asp Tyr Val Lys Arg Gly Asp Ser Ser Val Val Arg Cys Ser Leu Gln		
50	55	60
Thr Val Asn Val Ser Val Gly Gln Val Thr Glu Val Asp Lys Asp Thr		
65	70	75
Phe Trp Pro Ile Val Lys Ala Ala Gly Glu Lys Ile Val Val Leu Asp		80
85	90	95
Met Tyr Thr Gln Trp Cys Gly Pro Cys Lys Val Ile Ala Pro Lys Tyr		
100	105	110
Lys Ala Leu Ser Glu Lys Tyr Glu Asp Val Val Phe Leu Lys Leu Asp		
115	120	125
Cys Asn Pro Glu Asn Arg Pro Leu Ala Lys Glu Leu Gly Ile Arg Val		
130	135	140
Val Pro Thr Phe Lys Ile Leu Lys Asp Asn Gln Val Val Lys Glu Val		
145	150	155
Thr Gly Ala Lys Tyr Asp Asp Leu Val Ala Ala Ile Glu Thr Ala Arg		160
165	170	175
Ser Ala Ser Ser Ser Gly		
180		

<210> 55
<211> 191
<212> PRT
<213> Mesembryanthemum crystallinum

400	55		
Met Ala Met Gln Leu Ser Leu Ser His Gln Ser Trp Ala Lys Ser Leu			
1	5	10	15
Ala Ser Pro Ile Thr Ser Phe Asp Pro Ala Arg Ser Pro Pro Lys Arg			
20	25	30	
Val Glu Leu Gly Pro Asn Cys Leu Asn Gly Gly Ala Thr Ala Gly Lys			
35	40	45	
Leu Met Arg Glu Lys Val Gly Glu Arg Met Arg Met Ser Gly Arg Ser			
50	55	60	
Cys Cys Val Lys Ala Ser Leu Glu Thr Ala Val Gly Ala Glu Ser Glu			
65	70	75	80
Thr Leu Val Gly Lys Val Thr Glu Val Asp Lys Asp Thr Phe Trp Pro			
85	90	95	
Ile Ala Asn Gly Ala Gly Asp Lys Pro Val Val Leu Asp Met Tyr Thr			
100	105	110	
Gln Trp Cys Gly Pro Cys Lys Val Met Ala Pro Lys Tyr Gln Glu Leu			
115	120	125	
Ala Glu Lys Leu Leu Asp Val Val Phe Leu Lys Leu Asp Cys Asn Gln			
130	135	140	
Glu Asn Lys Pro Leu Ala Lys Glu Leu Gly Ile Arg Val Val Pro Thr			
145	150	155	160
Phe Lys Ile Leu Lys Gly Gly Lys Ile Val Asp Glu Val Thr Gly Ala			
165	170	175	
Lys Phe Asp Lys Leu Val Ala Ala Ile Glu Ala Ala Arg Ser Ser			
180	185	190	

<210> 56
<211> 182
<212> PRT
<213> Pisum sativum

400	56		
Met Ala Leu Asn Leu Cys Thr Ser Pro Lys Trp Ile Gly Thr Thr Val			
1	5	10	15
Phe Asp Ser Ala Ser Ser Ser Lys Pro Ser Leu Ala Ser Ser Phe Ser			
20	25	30	
Thr Thr Ser Phe Ser Ser Ser Ile Leu Cys Ser Lys Arg Val Gly Leu			
35	40	45	
Gln Arg Leu Ser Leu Arg Arg Ser Ile Ser Val Ser Val Arg Ser Ser			
50	55	60	

Leu Glu Thr Ala Gly Pro Thr Val Thr Val Gly Lys Val Thr Glu Val
 65 70 75 80
 Asn Lys Asp Thr Phe Trp Pro Ile Val Asn Ala Ala Gly Asp Lys Thr
 85 90 95
 Val Val Leu Asp Met Phe Thr Lys Trp Cys Gly Pro Cys Lys Val Ile
 100 105 110
 Ala Pro Leu Tyr Glu Glu Leu Ser Gln Lys Tyr Leu Asp Val Val Phe
 115 120 125
 Leu Lys Leu Asp Cys Asn Gln Asp Asn Lys Ser Leu Ala Lys Glu Leu
 130 135 140
 Gly Ile Lys Val Val Pro Thr Phe Lys Ile Leu Lys Asp Asn Lys Ile
 145 150 155 160
 Val Lys Glu Val Thr Gly Ala Lys Phe Asp Asp Leu Val Ala Ala Ile
 165 170 175
 Asp Thr Val Arg Ser Ser
 180

<210> 57
 <211> 190
 <212> PRT
 <213> Spinacia oleracea

<400> 57
 Met Ala Leu His Leu Ser Leu Ser His Gln Ser Trp Thr Ser Pro Ala
 1 5 10 15
 His Pro Ile Thr Ser Ser Asp Pro Thr Arg Ser Ser Val Pro Gly Thr
 20 25 30
 Gly Leu Ser Arg Arg Val Asp Phe Leu Gly Ser Cys Lys Ile Asn Gly
 35 40 45
 Val Phe Val Val Lys Arg Lys Asp Arg Arg Arg Met Arg Gly Gly Glu
 50 55 60
 Val Arg Ala Ser Met Glu Gln Ala Leu Gly Thr Gln Glu Met Glu Ala
 65 70 75 80
 Ile Val Gly Lys Val Thr Glu Val Asn Lys Asp Thr Phe Trp Pro Ile
 85 90 95
 Val Lys Ala Ala Gly Asp Lys Pro Val Val Leu Asp Met Phe Thr Gln
 100 105 110
 Trp Cys Gly Pro Cys Lys Ala Met Ala Pro Lys Tyr Glu Lys Leu Ala
 115 120 125
 Glu Glu Tyr Leu Asp Val Ile Phe Leu Lys Leu Asp Cys Asn Gln Glu
 130 135 140
 Asn Lys Thr Leu Ala Lys Glu Leu Gly Ile Arg Val Val Pro Thr Phe
 145 150 155 160
 Lys Ile Leu Lys Glu Asn Ser Val Val Gly Glu Val Thr Gly Ala Lys
 165 170 175
 Tyr Asp Lys Leu Leu Glu Ala Ile Gln Ala Ala Arg Ser Ser
 180 185 190

<210> 58
 <211> 106
 <212> PRT
 <213> Anabaena

<400> 58
 Ser Ala Ala Ala Gln Val Thr Asp Ser Thr Phe Lys Gln Glu Val Leu
 1 5 10 15
 Asp Ser Asp Val Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ala Pro Val Val Asp Glu Ile Ala Gln Gln Tyr
 35 40 45
 Glu Gly Lys Ile Lys Val Val Lys Val Asn Thr Asp Glu Asn Pro Gln
 50 55 60
 Val Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Gly Gly Gln Lys Val Asp Met Val Val Gly Ala Val Pro Lys Thr

85	90	95
Thr Leu Ser Gln Thr Leu Glu Lys His Leu		
100	105	

<210> 59
<211> 179
<212> PRT
<213> Arabidopsis thaliana

<400> 59

Met Ala Ala Tyr Thr Cys Thr Ser Arg Pro Pro Ile Ser Ile Arg Ser	15	
1 5 10	15	
Glu Met Arg Ile Ala Ser Ser Pro Thr Gly Ser Phe Ser Thr Arg Gln		
20 25 30		
Met Phe Ser Val Leu Pro Glu Ser Ser Gly Leu Arg Thr Arg Val Ser		
35 40 45		
Leu Ser Ser Leu Ser Lys Asn Ser Arg Val Ser Arg Leu Arg Arg Gly		
50 55 60		
Val Ile Cys Glu Ala Gln Asp Thr Ala Thr Gly Ile Pro Val Val Asn		
65 70 75 80		
Asp Ser Thr Trp Asp Ser Leu Val Leu Lys Ala Asp Glu Pro Val Phe		
85 90 95		
Val Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys Met Ile Asp Pro		
100 105 110		
Ile Val Asn Glu Leu Ala Gln Lys Tyr Ala Gly Gln Phe Lys Phe Tyr		
115 120 125		
Lys Leu Asn Thr Asp Glu Ser Pro Ala Thr Pro Gly Gln Tyr Gly Val		
130 135 140		
Arg Ser Ile Pro Thr Ile Met Ile Phe Val Asn Gly Glu Lys Lys Asp		
145 150 155 160		
Thr Ile Ile Gly Ala Val Ser Lys Asp Thr Leu Ala Thr Ser Ile Asn		
165 170 175		
Lys Phe Leu		

<210> 60
<211> 186
<212> PRT
<213> Arabidopsis thaliana

<400> 60

Met Ala Ala Phe Thr Cys Thr Ser Arg Pro Pro Ile Ser Leu Arg Ser	15	
1 5 10	15	
Glu Thr Arg Ile Val Ser Ser Pro Ser Ala Ser Ser Leu Ser Ser		
20 25 30		
Arg Arg Met Phe Ala Val Leu Pro Glu Ser Ser Gly Leu Arg Ile Arg		
35 40 45		
Leu Ser Leu Ser Pro Ala Ser Leu Thr Ser Ile His Gln Pro Arg Val		
50 55 60		
Ser Arg Leu Arg Arg Ala Val Val Cys Glu Ala Gln Glu Thr Thr		
65 70 75 80		
Asp Ile Gln Val Val Asn Asp Ser Thr Trp Asp Ser Leu Val Leu Lys		
85 90 95		
Ala Thr Gly Pro Val Val Val Asp Phe Trp Ala Pro Trp Cys Gly Pro		
100 105 110		
Cys Lys Met Ile Asp Pro Leu Val Asn Asp Leu Ala Gln His Tyr Thr		
115 120 125		
Gly Lys Ile Lys Phe Tyr Lys Leu Asn Thr Asp Glu Ser Pro Asn Thr		
130 135 140		
Pro Gly Gln Tyr Gly Val Arg Ser Ile Pro Thr Ile Met Ile Phe Val		
145 150 155 160		
Gly Gly Glu Lys Lys Asp Thr Ile Ile Gly Ala Val Pro Lys Thr Thr		
165 170 175		
Leu Thr Ser Ser Leu Asp Lys Phe Leu Pro		
180 185		

<210> 61
<211> 173
<212> PRT
<213> Arabidopsis thaliana

<400> 61
Met Ala Ile Ser Ser Ser Ser Ser Ile Cys Phe Asn Pro Thr Arg
1 5 10 15
Phe His Thr Ala Arg His Ile Ser Ser Pro Ser Arg Leu Phe Pro Val
20 25 30
Thr Ser Phe Ser Pro Arg Ser Leu Arg Phe Ser Asp Arg Arg Ser Leu
35 40 45
Leu Ser Ser Ser Ala Ser Arg Leu Arg Leu Ser Pro Leu Cys Val Arg
50 55 60
Asp Ser Arg Ala Ala Glu Val Thr Gln Arg Ser Trp Glu Asp Ser Val
65 70 75 80
Leu Lys Ser Glu Thr Pro Val Leu Val Glu Phe Tyr Thr Ser Trp Cys
85 90 95
Gly Pro Cys Arg Met Val His Arg Ile Ile Asp Glu Ile Ala Gly Asp
100 105 110
Tyr Ala Gly Lys Leu Asn Cys Tyr Leu Leu Asn Ala Asp Asn Asp Leu
115 120 125
Pro Val Ala Glu Glu Tyr Glu Ile Lys Ala Val Pro Val Val Leu Leu
130 135 140
Phe Lys Asn Gly Glu Lys Arg Glu Ser Ile Met Gly Thr Met Pro Lys
145 150 155 160
Glu Phe Tyr Ile Ser Ala Ile Glu Arg Val Leu Asn Ser
165 170

<210> 62
<211> 193
<212> PRT
<213> Arabidopsis thaliana

<400> 62
Met Ala Ser Leu Leu Asp Ser Val Thr Val Thr Arg Val Phe Ser Leu
1 5 10 15
Pro Ile Ala Ala Ser Val Ser Ser Ser Ala Ala Pro Ser Val Ser
20 25 30
Arg Arg Arg Ile Ser Pro Ala Arg Phe Leu Glu Phe Arg Gly Leu Lys
35 40 45
Ser Ser Arg Ser Leu Val Thr Gln Ser Ala Ser Leu Gly Ala Asn Arg
50 55 60
Arg Thr Arg Ile Ala Arg Gly Arg Ile Ala Cys Glu Ala Gln Asp
65 70 75 80
Thr Thr Ala Ala Ala Val Glu Val Pro Asn Leu Ser Asp Ser Glu Trp
85 90 95
Gln Thr Lys Val Leu Glu Ser Asp Val Pro Val Leu Val Glu Phe Trp
100 105 110
Ala Pro Trp Cys Gly Pro Cys Arg Met Ile His Pro Ile Val Asp Gln
115 120 125
Leu Ala Lys Asp Phe Ala Gly Lys Phe Lys Phe Tyr Lys Ile Asn Thr
130 135 140
Asp Glu Ser Pro Asn Thr Pro Asn Arg Tyr Gly Ile Arg Ser Val Pro
145 150 155 160
Thr Val Ile Ile Phe Lys Gly Gly Glu Lys Lys Asp Ser Ile Ile Gly
165 170 175
Ala Val Pro Arg Glu Thr Leu Glu Lys Thr Ile Glu Arg Phe Leu Val
180 185 190
Glu

<210> 63
<211> 177

<212> PRT

<213> Brassica napus

<400> 63

Met Ala Ala Phe Thr Cys Thr Ser Ser Pro Pro Ile Ser Leu Arg Ser
1 5 10 15
Glu Met Met Ile Ala Ser Ser Lys Thr Val Ser Leu Ser Thr Arg Gln
20 25 30
Met Phe Ser Val Gly Gly Leu Arg Thr Arg Val Ser Leu Ser Ser Val
35 40 45
Ser Lys Asn Ser Arg Ala Ser Arg Leu Arg Arg Gly Gly Ile Ile Cys
50 55 60
Glu Ala Gln Asp Thr Ala Thr Gly Ile Pro Met Val Asn Asp Ser Thr
65 70 75 80
Trp Glu Ser Leu Val Leu Lys Ala Asp Glu Pro Val Val Val Asp Phe
85 90 95
Trp Ala Pro Trp Cys Gly Pro Cys Lys Met Ile Asp Pro Ile Val Asn
100 105 110
Glu Leu Ala Gln Gln Tyr Thr Gly Lys Ile Lys Phe Phe Lys Leu Asn
115 120 125
Thr Asp Asp Ser Pro Ala Thr Pro Gly Lys Tyr Gly Val Arg Ser Ile
130 135 140
Pro Thr Ile Met Ile Phe Val Lys Gly Glu Lys Lys Asp Thr Ile Ile
145 150 155 160
Gly Ala Val Pro Lys Thr Thr Leu Ala Thr Ser Ile Asp Lys Phe Leu
165 170 175
Gln

<210> 64

<211> 140

<212> PRT

<213> Chlamydomonas reinhardtii

<400> 64

Met Ala Leu Val Ala Arg Arg Ala Ala Val Pro Ser Ala Arg Ser Ser
1 5 10 15
Ala Arg Pro Ala Phe Ala Arg Ala Ala Pro Arg Arg Ser Val Val Val
20 25 30
Arg Ala Glu Ala Gly Ala Val Asn Asp Asp Thr Phe Lys Asn Val Val
35 40 45
Leu Glu Ser Ser Val Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys
50 55 60
Gly Pro Cys Arg Ile Ile Ala Pro Val Val Asp Glu Ile Ala Gly Glu
65 70 75 80
Tyr Lys Asp Lys Leu Lys Cys Val Lys Leu Asn Thr Asp Glu Ser Pro
85 90 95
Asn Val Ala Ser Glu Tyr Gly Ile Arg Ser Ile Pro Thr Ile Met Val
100 105 110
Phe Lys Gly Gly Lys Lys Cys Glu Thr Ile Ile Gly Ala Val Pro Lys
115 120 125
Ala Thr Ile Val Gln Thr Val Glu Lys Tyr Leu Asn
130 135 140

<210> 65

<211> 167

<212> PRT

<213> Zea mays

<400> 65

Met Ala Met Glu Thr Cys Phe Arg Ala Trp Ala Leu His Ala Pro Ala
1 5 10 15
Gly Ser Lys Asp Arg Leu Leu Val Gly Asn Leu Val Leu Pro Ser Lys
20 25 30
Arg Ala Leu Ala Pro Leu Ser Val Gly Arg Val Ala Thr Arg Arg Pro

35	40	45	
Arg His Val Cys Gln Ser Lys Asn Ala Val Asp Glu Val Val Val Ala			
50	55	60	
Asp Glu Lys Asn Trp Asp Gly Leu Val Met Ala Cys Glu Thr Pro Val			
65	70	75	80
Leu Val Glu Phe Trp Ala Pro Trp Cys Gly Pro Cys Arg Met Ile Ala			
85	90	95	
Pro Val Ile Asp Glu Leu Ala Lys Asp Tyr Ala Gly Lys Ile Thr Cys			
100	105	110	
Cys Lys Val Asn Thr Asp Asp Ser Pro Asn Val Ala Ser Thr Tyr Gly			
115	120	125	
Ile Arg Ser Ile Pro Thr Val Leu Ile Phe Lys Gly Gly Glu Lys Lys			
130	135	140	
Glu Ser Val Ile Gly Ala Val Pro Lys Ser Thr Leu Thr Thr Leu Ile			
145	150	155	160
Asp Lys Tyr Ile Gly Ser Ser			
165			

<210> 66
<211> 172
<212> PRT
<213> Oryza sativa

<400> 66	15		
Met Ala Leu Glu Thr Cys Phe Arg Ala Trp Ala Thr Leu His Ala Pro			
1	5	10	15
Gln Pro Pro Ser Ser Gly Gly Ser Arg Asp Arg Leu Leu Leu Ser Gly			
20	25	30	
Ala Gly Ser Ser Gln Ser Lys Pro Arg Leu Ser Val Ala Ser Pro Ser			
35	40	45	
Pro Leu Arg Pro Ala Ser Arg Phe Ala Cys Gln Cys Ser Asn Val Val			
50	55	60	
Asp Glu Val Val Val Ala Asp Glu Lys Asn Trp Asp Ser Met Val Leu			
65	70	75	80
Gly Ser Glu Ala Pro Val Leu Val Glu Phe Trp Ala Pro Trp Cys Gly			
85	90	95	
Pro Cys Arg Met Ile Ala Pro Val Ile Asp Glu Leu Ala Lys Glu Tyr			
100	105	110	
Val Gly Lys Ile Lys Cys Cys Lys Val Asn Thr Asp Asp Ser Pro Asn			
115	120	125	
Ile Ala Thr Asn Tyr Gly Ile Arg Ser Ile Pro Thr Val Leu Met Phe			
130	135	140	
Lys Asn Gly Glu Lys Lys Glu Ser Val Ile Gly Ala Val Pro Lys Thr			
145	150	155	160
Thr Leu Ala Thr Ile Ile Asp Lys Tyr Val Ser Ser			
165	170		

<210> 67
<211> 172
<212> PRT
<213> Pisum sativum

<400> 67	15		
Met Ala Leu Glu Ser Leu Phe Lys Ser Ile His Thr Lys Thr Ser Leu			
1	5	10	15
Ser Ser Ser Ile Val Phe Ile Phe Lys Gly Lys Ala Cys Leu Leu Thr			
20	25	30	
Ser Lys Ser Arg Ile Gln Glu Ser Phe Ala Glu Leu Asn Ser Phe Thr			
35	40	45	
Ser Leu Val Leu Leu Ile Glu Asn His Val Leu Leu His Ala Arg Glu			
50	55	60	
Ala Val Asn Glu Val Gln Val Val Asn Asp Ser Ser Trp Asp Glu Leu			
65	70	75	80
Val Ile Gly Ser Glu Thr Pro Val Leu Val Asp Phe Trp Ala Pro Trp			
85	90	95	

Cys	Gly	Pro	Cys	Arg	Met	Ile	Ala	Pro	Ile	Ile	Asp	Glu	Leu	Ala	Lys
					100			105					110		
Glu	Tyr	Ala	Gly	Lys	Ile	Lys	Cys	Tyr	Lys	Leu	Asn	Thr	Asp	Glu	Ser
					115			120				125			
Pro	Asn	Thr	Ala	Thr	Lys	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Val	Leu
					130			135			140				
Phe	Phe	Lys	Asn	Gly	Glu	Arg	Lys	Asp	Ser	Val	Ile	Gly	Ala	Val	Pro
					145			150			155			160	
Lys	Ala	Thr	Leu	Ser	Glu	Lys	Val	Glu	Lys	Tyr	Ile				
					165					170					

<210> 68
<211> 181
<212> PRT
<213> Spinacia oleracea

<400> 68															
Met	Ala	Ile	Glu	Asn	Cys	Leu	Gln	Leu	Ser	Thr	Ser	Ala	Ser	Val	Gly
						1		5		10			15		
Thr	Val	Ala	Val	Lys	Ser	His	Val	His	His	Leu	Gln	Pro	Ser	Ser	Lys
						20			25			30			
Val	Asn	Val	Pro	Thr	Phe	Arg	Gly	Leu	Lys	Arg	Ser	Phe	Pro	Ala	Leu
						35			40			45			
Ser	Ser	Ser	Val	Ser	Ser	Ser	Ser	Pro	Arg	Gln	Phe	Arg	Tyr	Ser	Ser
						50			55			60			
Val	Val	Cys	Lys	Ala	Ser	Glu	Ala	Val	Lys	Glu	Val	Gln	Asp	Val	Asn
						65			70			75			80
Asp	Ser	Ser	Trp	Lys	Glu	Phe	Val	Leu	Glu	Ser	Glu	Val	Pro	Val	Met
						85				90			95		
Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly	Pro	Cys	Lys	Leu	Ile	Ala	Pro
						100			105			110			
Val	Ile	Asp	Glu	Leu	Ala	Lys	Glu	Tyr	Ser	Gly	Lys	Ile	Ala	Val	Tyr
						115			120			125			
Lys	Leu	Asn	Thr	Asp	Glu	Ala	Pro	Gly	Ile	Ala	Thr	Gln	Tyr	Asn	Ile
						130			135			140			
Arg	Ser	Ile	Pro	Thr	Val	Leu	Phe	Phe	Lys	Asn	Gly	Glu	Arg	Lys	Glu
						145			150			155			160
Ser	Ile	Ile	Gly	Ala	Val	Pro	Lys	Ser	Thr	Leu	Thr	Asp	Ser	Ile	Glu
						165				170			175		
Lys	Tyr	Leu	Ser	Pro											
					180										

<210> 69
<211> 175
<212> PRT
<213> Triticum aestivum

<400> 69															
Met	Ala	Leu	Glu	Thr	Cys	Leu	Arg	Gly	Trp	Ala	Leu	Tyr	Ala	Pro	Gln
						1			5		10		15		
Ala	Gly	Ile	Arg	Glu	Arg	Leu	Ser	Ser	Gly	Ser	Tyr	Ala	Pro	Ser	Arg
						20			25			30			
Pro	Arg	Thr	Ala	Ala	Pro	Ala	Val	Val	Ser	Pro	Ser	Pro	Tyr	Lys	Ser
						35			40			45			
Ala	Leu	Val	Ala	Ala	Arg	Arg	Pro	Ser	Arg	Phe	Val	Cys	Lys	Cys	Lys
						50			55			60			
Asn	Val	Val	Asp	Glu	Val	Ile	Val	Ala	Asp	Glu	Lys	Asn	Trp	Asp	Asn
						65			70			75			80
Met	Val	Ile	Ala	Cys	Glu	Ser	Pro	Val	Leu	Val	Glu	Phe	Trp	Ala	Pro
						85				90			95		
Trp	Cys	Gly	Pro	Cys	Arg	Met	Ile	Ala	Pro	Val	Ile	Asp	Glu	Leu	Ala
						100			105			110			
Lys	Asp	Tyr	Val	Gly	Lys	Ile	Lys	Cys	Cys	Lys	Val	Asn	Thr	Asp	Asp
						115			120			125			
Cys	Pro	Asn	Ile	Ala	Ser	Thr	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Val

130	135	140	
Leu Met Phe Lys Asp Gly Glu Lys Lys Glu Ser Val Ile Gly Ala Val			
145	150	155	160
Pro Lys Thr Thr Leu Cys Thr Ile Ile Asp Lys Tyr Ile Gly Ser			
165	170	175	

```
<210> 70
<211> 106
<212> PRT
<213> Anacystis nidulans
```

```

<400> 70
Ser Val Ala Ala Ala Val Thr Asp Ala Thr Phe Lys Gln Glu Val Leu
      5          10          15
1
Glu Ser Ser Ile Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
      20          25          30
Pro Cys Arg Met Val Ala Pro Val Val Asp Glu Ile Ala Gln Gln Tyr
      35          40          45
Ser Asp Gln Val Lys Val Val Lys Val Asn Thr Asp Glu Asn Pro Ser
      50          55          60
Val Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
      65          70          75          80
Lys Asp Gly Gln Arg Val Asp Thr Val Val Gly Ala Val Pro Lys Thr
      85          90          95
Thr Leu Ala Asn Thr Leu Asp Lys His Leu
      100         105

```

<210> 71
<211> 107
<212> PRT
<213> Cyanidium caldarium

```

<400> 71
Met Pro Ser Pro Ile Gln Val Thr Asp Phe Ser Phe Glu Lys Glu Val
      5          10          15
      1
Val Asn Ser Glu Lys Leu Val Leu Val Asp Phe Trp Ala Pro Trp Cys
      20          25          30
Gly Pro Cys Arg Met Ile Ser Pro Val Ile Asp Glu Leu Ala Gln Glu
      35          40          45
Tyr Val Glu Gln Val Lys Ile Val Lys Ile Asn Thr Asp Glu Asn Pro
      50          55          60
Ser Ile Ser Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Leu
      65          70          75          80
Phe Lys Asp Gly Lys Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys
      85          90          95
Ser Thr Leu Thr Asn Ala Leu Lys Lys Tyr Leu
      100         105

```

<210> 72
<211> 102
<212> PRT
<213> Cyanidioschyzon merolae

```

<400> 72
Met Leu His Ile Asp Glu Leu Thr Phe Glu Asn Glu Val Leu Gln Ser
      1           5           10          15
Glu Lys Leu Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys
      20          25          30
Arg Met Ile Gly Pro Ile Leu Glu Glu Ile Ala Lys Glu Phe Asn Leu
      35          40          45
Lys Val Val Gln Val Asn Thr Asp Glu Asn Pro Asn Leu Ala Thr Phe
      50          55          60
Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Leu Phe Lys Lys Gly Gln
      65          70          75          80

```

Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser Ile Leu Ile His
85 90 95
Thr Ile Asn Lys Tyr Leu
100

<210> 73
<211> 109
<212> PRT
<213> Griffithsia pacifica

<400> 73
Met Ser Ile Ser Gln Val Ile Asp Thr Ser Phe His Glu Glu Val Ile
1 5 10 15
Asn Ser Arg Gln Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20 25 30
Pro Cys Arg Met Ile Ala Ser Thr Ile Asp Glu Ile Ala His Asp Tyr
35 40 45
Lys Asp Lys Leu Lys Val Val Lys Val Asn Thr Asp Gln Asn Pro Thr
50 55 60
Ile Ala Thr Glu Tyr Gly Ile Arg Ser Ile Pro Thr Val Met Ile Phe
65 70 75 80
Ile Asn Gly Lys Lys Val Asp Thr Val Val Gly Ala Val Pro Lys Leu
85 90 95
Thr Leu Leu Asn Thr Leu Gln Lys His Leu Lys Ser Thr
100 105

<210> 74
<211> 107
<212> PRT
<213> Porphyra yezoensis

<400> 74
Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
1 5 10 15
Asn Asn Asn Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20 25 30
Pro Cys Arg Met Val Ser Pro Val Val Asp Glu Ile Ala Glu Glu Tyr
35 40 45
Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
50 55 60
Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
65 70 75 80
Lys Ala Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser
85 90 95
Thr Leu Ala Ser Thr Leu Asn Lys Tyr Ile Ser
100 105

<210> 75
<211> 107
<212> PRT
<213> Porphyra purpurea

<400> 75
Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
1 5 10 15
Asn Asn Asp Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20 25 30
Pro Cys Arg Met Val Ser Pro Val Val Asp Ala Ile Ala Glu Glu Tyr
35 40 45
Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
50 55 60
Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
65 70 75 80
Lys Ser Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser

85 90 95
Thr Leu Glu Ser Thr Leu Asn Lys Tyr Ile Ser
100 105

<210> 76
<211> 114
<212> PRT
<213> Arabidopsis thaliana

<400> 76
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
1 5 10 15
Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
50 55 60
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65 70 75 80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
100 105 110
Leu Ala

<210> 77
<211> 110
<212> PRT
<213> Anabaena

<400> 77
Ser Lys Gly Val Ile Thr Ile Thr Asp Ala Glu Phe Glu Ser Glu Val
1 5 10 15
Leu Lys Ala Glu Gln Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys
20 25 30
Gly Pro Cys Gln Leu Met Ser Pro Leu Ile Asn Leu Ala Ala Asn Thr
35 40 45
Tyr Ser Asp Arg Leu Lys Val Val Lys Leu Glu Ile Asp Pro Asn Pro
50 55 60
Thr Thr Val Lys Tyr Lys Val Glu Gly Val Pro Ala Leu Arg Leu
65 70 75 80
Val Lys Gly Glu Gln Ile Leu Asp Ser Thr Glu Gly Val Ile Ser Lys
85 90 95
Asp Lys Leu Leu Ser Phe Leu Asp Thr His Leu Asn Asn Asn
100 105 110

<210> 78
<211> 123
<212> PRT
<213> Brassica napus

<400> 78
Met Ala Ala Thr Ala Glu Val Ile Pro Ala Gly Glu Val Ile Ala Cys
1 5 10 15
His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
20 25 30
Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
35 40 45
Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
50 55 60
Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Gln
65 70 75 80

Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
 85 90 95
 Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
 100 105 110
 Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
 115 120

<210> 79
 <211> 126
 <212> PRT
 <213> Nicotiana tabacum

<400> 79
 Met Ala Ala Asn Asp Ala Thr Ser Ser Glu Glu Gly Gln Val Phe Gly
 1 5 10 15
 Cys His Lys Val Glu Glu Trp Asn Glu Tyr Phe Lys Lys Gly Val Glu
 20 25 30
 Thr Lys Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro
 35 40 45
 Cys Arg Phe Ile Ala Pro Ile Leu Ala Asp Ile Ala Lys Lys Met Pro
 50 55 60
 His Val Ile Phe Leu Lys Val Asp Val Asp Glu Leu Lys Thr Val Ser
 65 70 75 80
 Ala Glu Trp Ser Val Glu Ala Met Pro Thr Phe Val Phe Ile Lys Asp
 85 90 95
 Gly Lys Glu Val Asp Arg Val Val Gly Ala Lys Lys Glu Glu Leu Gln
 100 105 110
 Gln Thr Ile Val Lys His Ala Ala Pro Ala Thr Val Thr Ala
 115 120 125

<210> 80
 <211> 133
 <212> PRT
 <213> Arabidopsis thaliana

<400> 80
 Met Gly Gly Ala Leu Ser Thr Val Phe Gly Ser Gly Glu Asp Ala Thr
 1 5 10 15
 Ala Ala Gly Thr Glu Ser Glu Pro Ser Arg Val Leu Lys Phe Ser Ser
 20 25 30
 Ser Ala Arg Trp Gln Leu His Phe Asn Glu Ile Lys Glu Ser Asn Lys
 35 40 45
 Leu Leu Val Val Asp Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Met
 50 55 60
 Ile Glu Pro Ala Ile His Ala Met Ala Asp Lys Phe Asn Asp Val Asp
 65 70 75 80
 Phe Val Lys Leu Asp Val Asp Glu Leu Pro Asp Val Ala Lys Glu Phe
 85 90 95
 Asn Val Thr Ala Met Pro Thr Phe Val Leu Val Lys Arg Gly Lys Glu
 100 105 110
 Ile Glu Arg Ile Ile Gly Ala Lys Lys Asp Glu Leu Glu Lys Lys Val
 115 120 125
 Ser Lys Leu Arg Ala
 130

<210> 81
 <211> 119
 <212> PRT
 <213> Brassica napus

<400> 81
 Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Glu Ile Asp Val
 1 5 10 15
 Trp Ala Val Gln Leu Asp Thr Ala Lys Gln Ser Asn Lys Leu Ile Val

Ile	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Pro	Pro	Cys	Arg	Met	Ile	Ala	Pro
20						25					30				
35						40					45				
Val	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Phe	Met	Ser	Ser	Ala	Ile	Phe	Phe
50						55					60				
Lys	Val	Asp	Val	Asp	Glu	Leu	Gln	Asn	Val	Ala	Gln	Glu	Phe	Gly	Val
65						70					75				80
Glu	Ala	Met	Pro	Thr	Phe	Val	Leu	Ile	Lys	Asp	Gly	Asn	Val	Val	Asp
						85					90				95
Lys	Val	Val	Gly	Ala	Arg	Lys	Glu	Asp	Leu	His	Ala	Thr	Ile	Ala	Lys
						100					105				110
His	Thr	Gly	Val	Ala	Thr	Ala									
						115									

<210> 82
<211> 118
<212> PRT
<213> Nicotiana tabacum

<400>	82														
Met	Ala	Glu	Glu	Gly	Gln	Val	Ile	Gly	Val	His	Thr	Val	Asp	Ala	Trp
1						5				10					15
Asn	Glu	His	Leu	Gln	Lys	Gly	Ile	Asp	Asp	Lys	Lys	Leu	Ile	Val	Val
						20				25					30
Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Lys	Phe	Ile	Ala	Ser	Phe
						35					40				45
Tyr	Ala	Glu	Leu	Ala	Lys	Lys	Met	Pro	Thr	Val	Thr	Phe	Leu	Lys	Val
						50					55				60
Asp	Val	Asp	Glu	Leu	Lys	Ser	Val	Ala	Thr	Asp	Trp	Ala	Val	Glu	Ala
						65					70				80
Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys	Ile	Val	Asp	Lys	Val
						85					90				95
Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Gln	Thr	Ile	Ala	Lys	His	Ile
						100					105				110
Ser	Ser	Thr	Ser	Thr	Ala										
					115										

<210> 83
<211> 118
<212> PRT
<213> Arabidopsis thaliana

<400>	83														
Met	Ala	Ala	Glu	Gly	Glu	Val	Ile	Ala	Cys	His	Thr	Val	Glu	Asp	Trp
1						5				10					15
Thr	Glu	Lys	Leu	Lys	Ala	Ala	Asn	Glu	Ser	Lys	Lys	Leu	Ile	Val	Ile
						20				25					30
Asp	Phe	Thr	Ala	Thr	Trp	Cys	Pro	Pro	Cys	Arg	Phe	Ile	Ala	Pro	Val
						35					40				45
Phe	Ala	Asp	Leu	Ala	Lys	Lys	His	Leu	Asp	Val	Val	Phe	Phe	Lys	Val
						50					55				60
Asp	Val	Asp	Glu	Leu	Asn	Thr	Val	Ala	Glu	Glu	Phe	Lys	Val	Gln	Ala
						65					70				80
Met	Pro	Thr	Phe	Ile	Phe	Met	Lys	Glu	Gly	Glu	Ile	Lys	Glu	Thr	Val
						85					90				95
Val	Gly	Ala	Ala	Lys	Glu	Glu	Ile	Ile	Ala	Asn	Leu	Glu	Lys	His	Lys
						100					105				110
Thr	Val	Val	Ala	Ala	Ala										
					115										

<210> 84
<211> 125
<212> PRT
<213> Arabidopsis thaliana

<400> 84
Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Asn Asp Val
1 5 10 15
Trp Thr Val Gln Leu Asp Lys Ala Lys Glu Ser Asn Lys Leu Ile Val
20 25 30
Ile Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Met Ile Ala Pro
35 40 45
Ile Phe Asn Asp Leu Ala Lys Lys Phe Met Ser Ser Ala Ile Phe Phe
50 55 60
Lys Val Asp Val Asp Glu Leu Gln Ser Val Ala Lys Glu Phe Gly Val
65 70 75 80
Glu Ala Met Pro Thr Phe Val Phe Ile Lys Ala Gly Glu Val Val Asp
85 90 95
Lys Leu Val Gly Ala Asn Lys Glu Asp Leu Gln Ala Lys Ile Val Lys
100 105 110
His Thr Gly Val Thr Thr Val Val Asn Gln Phe Glu Ala
115 120 125

<210> 85
<211> 118
<212> PRT
<213> Arabidopsis thaliana

<400> 85
Met Ala Gly Glu Gly Glu Val Ile Ala Cys His Thr Leu Glu Val Trp
1 5 10 15
Asn Glu Lys Val Lys Asp Ala Asn Glu Ser Lys Lys Leu Ile Val Ile
20 25 30
Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Phe Ile Ala Pro Val
35 40 45
Phe Ala Glu Met Ala Lys Lys Phe Thr Asn Val Val Phe Phe Lys Ile
50 55 60
Asp Val Asp Glu Leu Gln Ala Val Ala Gln Glu Phe Lys Val Glu Ala
65 70 75 80
Met Pro Thr Phe Val Phe Met Lys Glu Gly Asn Ile Ile Asp Arg Val
85 90 95
Val Gly Ala Ala Lys Asp Glu Ile Asn Glu Lys Leu Met Lys His Gly
100 105 110
Gly Leu Val Ala Ser Ala
115

<210> 86
<211> 123
<212> PRT
<213> Brassica rapa

<400> 86
Met Ala Ala Thr Ala Glu Leu Ile Pro Ala Gly Glu Val Ile Ala Cys
1 5 10 15
His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
20 25 30
Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
35 40 45
Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
50 55 60
Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Lys
65 70 75 80
Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
85 90 95
Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
100 105 110
Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
115 120

<210> 87
<211> 112
<212> PRT
<213> Chlamydomonas reinhardtii

<400> 87
Gly Gly Ser Val Ile Val Ile Asp Ser Lys Ala Ala Trp Asp Ala Gln
1 5 10 15
Leu Ala Lys Gly Lys Glu Glu His Lys Pro Ile Val Val Asp Phe Thr
20 25 30
Ala Thr Trp Cys Gly Pro Cys Lys Met Ile Ala Pro Leu Phe Glu Thr
35 40 45
Leu Ser Asn Asp Tyr Ala Gly Lys Val Ile Phe Leu Lys Val Asp Val
50 55 60
Asp Ala Val Ala Ala Val Ala Glu Ala Ala Gly Ile Thr Ala Met Pro
65 70 75 80
Thr Phe His Val Tyr Lys Asp Gly Val Lys Ala Asp Asp Leu Val Gly
85 90 95
Ala Ser Gln Asp Lys Leu Lys Ala Leu Val Ala Lys His Ala Ala Ala
100 105 110

<210> 88
<211> 116
<212> PRT
<213> Fagopyrum esculentum

<400> 88
Met Ala Glu Glu Ala Gln Val Ile Ala Cys His Thr Val Gln Glu Trp
1 5 10 15
Asn Glu Lys Phe Gln Lys Ala Lys Asp Ser Gly Lys Leu Ile Val Ile
20 25 30
Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Thr Pro Tyr
35 40 45
Val Ser Glu Leu Ala Lys Lys Phe Pro His Val Ala Phe Phe Lys Val
50 55 60
Asp Val Asp Asp Leu Lys Asp Val Ala Glu Glu Tyr Lys Val Glu Ala
65 70 75 80
Met Pro Ser Phe Val Ile Leu Lys Glu Gly Gln Glu Val Glu Arg Ile
85 90 95
Val Gly Ala Arg Lys Asp Glu Leu Leu His Lys Ile Ala Val His Ala
100 105 110
Pro Ile Thr Ala
115

<210> 89
<211> 122
<212> PRT
<213> Oryza sativa

<400> 89
Met Ala Ala Glu Glu Gly Val Val Ile Ala Cys His Asn Lys Asp Glu
1 5 10 15
Phe Asp Ala Gln Met Thr Lys Ala Lys Glu Ala Gly Lys Val Val Ile
20 25 30
Ile Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Val Phe Ala Glu Tyr Ala Lys Lys Phe Pro Gly Ala Val Phe Leu Lys
50 55 60
Val Asp Val Asp Glu Leu Lys Glu Val Ala Glu Lys Tyr Asn Val Glu
65 70 75 80
Ala Met Pro Thr Phe Leu Phe Ile Lys Asp Gly Ala Glu Ala Asp Lys
85 90 95
Val Val Gly Ala Arg Lys Asp Asp Leu Gln Asn Thr Ile Val Lys His
100 105 110
Val Gly Ala Thr Ala Ala Ser Ala Ser Ala

<210> 90
<211> 125
<212> PRT
<213> Picea mariana

<400> 90
Met Ala Glu Gly Asn Val Phe Ala Cys His Ser Thr Glu Gly Trp Arg
1 5 10 15
Ser Lys Leu Gln Glu Ala Ile Asp Thr Lys Arg Leu Val Ala Val Asp
20 25 30
Phe Thr Ala Thr Trp Cys Gly Pro Cys Arg Val Ile Gly Pro Val Phe
35 40 45
Val Glu Leu Ser Lys Lys Phe Pro Glu Ile Phe Phe Leu Lys Val Asp
50 55 60
Val Asp Glu Leu Arg Asp Val Ala Gln Glu Trp Asp Val Glu Ala Met
65 70 75 80
Pro Thr Phe Ile Phe Ile Lys Asp Gly Lys Ala Val Asp Lys Val Val
85 90 95
Gly Ala Lys Lys Asp Asp Leu Glu Arg Lys Val Ala Ala Leu Ala Ala
100 105 110
Ala Ala Thr Thr Thr Glu Ala Thr Leu Pro Ala Gln Ala
115 120 125

<210> 91
<211> 118
<212> PRT
<213> Ricinus communis

<400> 91
Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Val Glu Ala
1 5 10 15
Trp Asn Glu Gln Leu Gln Lys Gly Asn Asp Thr Lys Gly Leu Ile Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Leu Ala Glu Leu Ala Lys Lys Leu Pro Asn Val Thr Phe Leu Lys
50 55 60
Val Asp Val Asp Glu Leu Lys Thr Val Ala His Glu Trp Ala Val Glu
65 70 75 80
Ser Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Met Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Thr Ile Ala Lys His
100 105 110
Met Ala Thr Ala Ser Thr
115

<210> 92
<211> 126
<212> PRT
<213> triticum aestivum

<400> 92
Ala Ala Ser Ala Ala Thr Ala Thr Ala Ala Ala Val Gly Ala
1 5 10 15
Gly Glu Val Ile Ser Val His Ser Leu Glu Gln Trp Thr Met Gln Ile
20 25 30
Glu Glu Ala Asn Ala Ala Lys Lys Leu Val Val Ile Asp Phe Thr Ala
35 40 45
Ser Trp Cys Gly Pro Cys Arg Ile Met Ala Pro Ile Phe Ala Asp Leu
50 55 60
Ala Lys Lys Phe Pro Ala Ala Val Phe Leu Lys Val Asp Val Asp Glu
65 70 75 80

Leu Lys Pro Ile Ala Glu Gln Phe Ser Val Glu Ala Met Pro Thr Phe
85 90 95
Leu Phe Met Lys Glu Gly Asp Val Lys Asp Arg Val Val Gly Ala Ile
100 105 110
Lys Glu Glu Leu Thr Thr Lys Val Gly Leu His Ala Ala Gln
115 120 125

<210> 93
<211> 109
<212> PRT
<213> Aspergillus nidulans

<400> 93
Gly Ala Ser Glu His Val Pro Pro Ile Thr Ser Lys Ala Glu Phe Gln
1 5 10 15
Glu Lys Val Leu Asn Ala Lys Gly Phe Val Val Val Asp Cys Phe Ala
20 25 30
Thr Trp Cys Gly Pro Cys Lys Ala Ile Ala Pro Thr Val Glu Lys Phe
35 40 45
Ala Gln Thr Tyr Thr Asp Ala Ser Phe Tyr Gln Ile Asp Val Asp Glu
50 55 60
Leu Ser Glu Val Ala Ala Glu Leu Gly Ile Arg Ala Met Pro Thr Phe
65 70 75 80
Leu Leu Phe Lys Asp Gly Gln Lys Val Ser Asp Val Val Gly Ala Asn
85 90 95
Pro Gly Ala Leu Glu Ala Gly Ile Lys Ala Leu Leu Ala
100 105

<210> 94
<211> 105
<212> PRT
<213> Alicyclobacillus

<400> 94
Ala Thr Met Thr Leu Thr Asp Ala Asn Phe Gln Gln Ala Ile Gln Gly
1 5 10 15
Asp Lys Pro Val Leu Val Asp Phe Trp Ala Ala Trp Cys Gly Pro Cys
20 25 30
Arg Met Met Ala Pro Val Leu Glu Glu Phe Ala Glu Ala His Ala Asp
35 40 45
Lys Val Thr Val Ala Lys Leu Asn Val Asp Glu Asn Pro Glu Thr Thr
50 55 60
Ser Gln Phe Gly Ile Met Ser Ile Pro Thr Leu Ile Leu Phe Lys Gly
65 70 75 80
Gly Arg Pro Val Lys Gln Leu Ile Gly Tyr Gln Pro Lys Glu Gln Leu
85 90 95
Glu Ala Gln Leu Ala Asp Val Leu Gln
100 105

<210> 95
<211> 91
<212> PRT
<213> Archaeoglobus fulgidus

<400> 95
Met Val Met Met Lys Leu Phe Thr Ser Pro Thr Cys Pro Tyr Cys Pro
1 5 10 15
Lys Ala Glu Lys Val Val Ser Lys Val Ala Lys Glu Glu Gly Val Leu
20 25 30
Ala Ile Asn Leu Pro Val Asn Thr Asp Glu Gly Leu Lys Glu Ala Leu
35 40 45
Lys Phe Gly Ile Arg Gly Val Pro Ala Leu Val Ile Asn Asp Lys Tyr
50 55 60
Leu Ile Leu Gly Val Pro Asp Glu Gly Glu Leu Arg Gln Leu Ile Arg

65 70 75 80
Lys Leu Lys Gly Gly Glu Glu Tyr Gly Ala Ser
 85 90

<210> 96
<211> 103
<212> PRT
<213> Bacillus subtilis

<400> 96
Ala Ile Val Lys Ala Thr Asp Gln Ser Phe Ser Ala Glu Thr Ser Glu
 1 5 10 15
Gly Val Val Leu Ala Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys
 20 25 30
Met Ile Ala Pro Val Leu Glu Glu Leu Asp Gln Glu Met Gly Asp Lys
 35 40 45
Leu Lys Ile Val Lys Ile Asp Val Asp Glu Asn Gln Glu Thr Ala Gly
 50 55 60
Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Leu Val Leu Lys Asp Gly
 65 70 75 80
Glu Val Val Glu Thr Ser Val Gly Phe Lys Pro Lys Glu Ala Leu Gln
 85 90 95
Glu Leu Val Asn Lys His Leu
 100

<210> 97
<211> 87
<212> PRT
<213> Bacteriophage T4

<400> 97
Met Phe Lys Val Tyr Gly Tyr Asp Ser Asn Ile His Lys Cys Val Tyr
 1 5 10 15
Cys Asp Asn Ala Lys Arg Leu Leu Thr Val Lys Lys Gln Pro Phe Glu
 20 25 30
Phe Ile Asn Ile Met Pro Glu Lys Gly Val Phe Asp Asp Glu Lys Ile
 35 40 45
Ala Glu Leu Leu Thr Lys Leu Gly Arg Asp Thr Gln Ile Gly Leu Thr
 50 55 60
Met Pro Gln Val Phe Ala Pro Asp Gly Ser His Ile Gly Gly Phe Asp
 65 70 75 80
Gln Leu Arg Glu Tyr Phe Lys
 85

<210> 98
<211> 117
<212> PRT
<213> Borrelia burgdorferi

<400> 98
Met Ala Ile Ser Leu Thr Glu Glu Asp Phe Val Val Lys Val Phe Asp
 1 5 10 15
Tyr Lys Asn Asp Lys Glu Trp Ser Phe Arg Gly Asp Arg Pro Ala Ile
 20 25 30
Ile Asp Phe Tyr Ala Asn Trp Cys Gly Pro Cys Lys Met Leu Ser Pro
 35 40 45
Ile Phe Glu Lys Leu Ser Lys Lys Tyr Glu Asn Ser Ile Asp Phe Tyr
 50 55 60
Lys Val Asp Thr Asp Lys Glu Gln Asp Ile Ser Ser Ala Ile Gly Val
 65 70 75 80
Gln Ser Leu Pro Thr Ile Leu Phe Ile Pro Val Asp Gly Lys Pro Lys
 85 90 95
Val Ser Val Gly Phe Leu Gln Glu Asp Ala Phe Glu Asn Ile Ile Lys
 100 105 110

Asp Phe Phe Gly Phe
115

<210> 99
<211> 108
<212> PRT
<213> Buchnera aphidicola

<400> 99
Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Glu Gln Val
1 5 10 15
Leu Asn Ser Lys Ser Phe Phe Leu Val Asp Phe Trp Ala Gln Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ser Lys Glu
35 40 45
Tyr Ser Asn Lys Val Ile Val Gly Lys Leu Asn Ile Glu Glu Asn Pro
50 55 60
Asn Thr Ala Pro Val Tyr Ser Ile Arg Ser Ile Pro Thr Leu Leu Leu
65 70 75 80
Phe Asn Asn Ser Glu Val Leu Ala Thr Lys Val Gly Ala Val Ser Lys
85 90 95
Leu Glu Leu Lys Glu Phe Leu Asp Glu Asn Ile Asn
100 105

<210> 100
<211> 108
<212> PRT
<213> aphidicola

<400> 100
Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Lys Glu Val
1 5 10 15
Leu Glu His Lys Ser Phe Val Leu Val Asp Phe Trp Ala Glu Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ala Gln Glu
35 40 45
Tyr Phe Asn Lys Ile Lys Val Gly Lys Leu Asn Ile Glu Lys Asn Pro
50 55 60
Asn Thr Ala Pro Ile Tyr Ser Ile Arg Gly Ile Pro Ala Leu Leu Leu
65 70 75 80
Phe His Gly Arg Glu Val Leu Ala Thr Lys Val Gly Ala Ile Ser Lys
85 90 95
Leu Gln Leu Lys Asp Phe Leu Asp Glu Asn Ile Lys
100 105

<210> 101
<211> 108
<212> PRT
<213> Chlorobium limicola

<220>
<221> VARIANT
<222> 16, 17, 38, 42, 45, 54, 55, 58, 66, 72, 75, 79, 80, 81, 94,
99, 103
<223> Xaa = Any Amino Acid

<400> 101
Ala Gly Lys Tyr Phe Glu Ala Thr Asp Lys Asn Phe Gln Thr Glu Xaa
1 5 10 15
Xaa Asp Ser Asp Lys Ala Val Leu Val Asp Phe Trp Ala Ser Trp Cys
20 25 30
Gly Pro Cys Met Met Xaa Gly Pro Val Xaa Glu Gln Xaa Ala Asp Asp
35 40 45
Tyr Glu Gly Lys Ala Xaa Xaa Ala Lys Xaa Asn Val Asp Glu Asn Pro

50	55	60
Asn Xaa Ala Gly Gln Tyr	Gly Xaa Arg Ser Xaa Pro Thr Met Xaa Xaa	
65	70	75 80
Xaa Lys Gly Gly Lys Val Val Asp Gln Met Val Gly Ala Xaa Pro Lys		
	85 90	95
Asn Met Xaa Ala Lys Lys Xaa Asp Glu His Ile Gly		
	100 105	

<210> 102
<211> 102
<212> PRT
<213> Chlamydia muridarum

<400> 102		
Met Val Gln Ile Val Ser Gln Asp Asn Phe Ala Asp Ser Ile Ala Ser		
1 5 10 15		
Gly Leu Val Leu Val Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys		
20 25 30		
Met Leu Thr Pro Val Leu Glu Ala Leu Ala Ala Glu Leu Pro Tyr Val		
35 40 45		
Thr Ile Leu Lys Leu Asp Ile Asp Ala Ser Pro Arg Pro Ala Glu Gln		
50 55 60		
Phe Gly Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys		
65 70 75 80		
Glu Val Glu Arg Ser Val Gly Leu Lys Asp Lys Asp Ser Leu Val Lys		
85 90 95		
Leu Ile Ser Lys His Gln		
100		

<210> 103
<211> 102
<212> PRT
<213> Chlamydia pneumoniae

<400> 103		
Met Val Lys Ile Ile Ser Ser Glu Asn Phe Asp Ser Phe Ile Ala Ser		
1 5 10 15		
Gly Leu Val Leu Val Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Arg		
20 25 30		
Met Leu Thr Pro Ile Leu Glu Asn Leu Ala Ala Glu Leu Pro His Val		
35 40 45		
Thr Ile Gly Lys Ile Asn Ile Asp Glu Asn Ser Lys Pro Ala Glu Thr		
50 55 60		
Tyr Glu Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Asn		
65 70 75 80		
Glu Val Ala Arg Val Val Gly Leu Lys Asp Lys Glu Phe Leu Thr Asn		
85 90 95		
Leu Ile Asn Lys His Ala		
100		

<210> 104
<211> 102
<212> PRT
<213> Psittaci

<400> 104		
Met Val Lys Val Val Ser Ala Glu Asn Phe Asn Ser Phe Ile Ala Thr		
1 5 10 15		
Gly Leu Val Leu Ile Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys		
20 25 30		
Met Leu Thr Pro Val Leu Glu Ser Leu Glu Ala Glu Val Ser Ser Val		
35 40 45		
Leu Ile Gly Lys Val Asn Ile Asp Asp His Pro Ala Pro Ala Glu Gln		
50 55 60		

Tyr Gly Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Asp Arg Val Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Arg
 85 90 95
 Leu Ile Asn Gln His Ser
 100

<210> 105
 <211> 102
 <212> PRT
 <213> Chlamydia trachomatis

<400> 105
 Met Val Gln Val Val Ser Gln Glu Asn Phe Ala Asp Ser Ile Ala Ser
 1 5 10 15
 Gly Leu Val Leu Ile Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Leu Thr Pro Val Leu Glu Ala Leu Ala Ala Glu Leu Pro His Val
 35 40 45
 Thr Ile Leu Lys Val Asp Ile Asp Ser Ser Pro Arg Pro Ala Glu Gln
 50 55 60
 Tyr Ser Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Glu Arg Ser Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Lys
 85 90 95
 Leu Ile Ser Lys His Gln
 100

<210> 106
 <211> 105
 <212> PRT
 <213> Cornybacterium nephridii

<400> 106
 Ala Thr Val Lys Val Asp Asn Ser Asn Phe Gln Ser Asp Val Leu Gln
 1 5 10 15
 Ser Ser Glu Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Lys Met Ile Ala Pro Ala Leu Asp Glu Ile Ala Thr Glu Met Ala
 35 40 45
 Gly Gln Val Lys Ile Ala Lys Val Asn Ile Asp Glu Asn Pro Glu Leu
 50 55 60
 Ala Ala Gln Phe Gly Val Arg Ser Ile Pro Thr Leu Leu Met Phe Lys
 65 70 75 80
 Asp Gly Glu Leu Ala Ala Asn Met Val Gly Ala Ala Pro Lys Ser Arg
 85 90 95
 Leu Ala Asp Trp Ile Lys Ala Ser Ala
 100 105

<210> 107
 <211> 107
 <212> PRT
 <213> Cornybacterium nephridii

<400> 107
 Ser Ala Thr Ile Val Asn Thr Thr Asp Glu Asn Phe Gln Ala Asp Val
 1 5 10 15
 Leu Asp Ala Glu Thr Pro Val Leu Val Asp Phe Trp Ala Gly Trp Cys
 20 25 30
 Ala Pro Cys Lys Ala Ile Ala Pro Val Leu Glu Glu Leu Ser Asn Glu
 35 40 45
 Tyr Ala Gly Lys Val Lys Ile Val Lys Val Asp Val Thr Ser Cys Glu
 50 55 60
 Asp Thr Ala Val Lys Tyr Asn Ile Arg Asn Ile Pro Ala Leu Leu Met

65 Phe Lys Asp Gly Glu Val Val Ala Gln Gln Val Gly Ala Ala Pro Arg	70 85	75 90	80 95
Ser Lys Leu Ala Ala Phe Ile Asp Gln Asn Ile			
	100	105	

<210> 108
<211> 145
<212> PRT
<213> *Cornybacterium nephridii*

<400> 108 Met Ile Ile Val Cys Ala Ser Cys Gly Ala Lys Asn Arg Val Pro Glu	1 5	10 15	
Glu Lys Leu Ala Val His Pro Asn Cys Gly Gln Cys His Gln Ala Leu	20	25	30
Leu Pro Leu Glu Pro Ile Glu Leu Asn Glu Gln Asn Phe Ser Asn Phe	35	40	45
Ile Ser Asn Ser Asp Leu Pro Val Leu Ile Asp Leu Trp Ala Glu Trp	50	55	60
Cys Gly Pro Cys Lys Met Met Ala Pro His Phe Ala Gln Val Ala Lys	65	70	80
Gln Asn Pro Tyr Val Val Phe Ala Lys Ile Asp Thr Glu Ala Asn Pro	85	90	95
Arg Leu Ser Ala Ala Phe Asn Val Arg Ser Ile Pro Thr Leu Val Leu	100	105	110
Met Asn Lys Thr Thr Glu Val Ala Arg Ile Ser Gly Ala Leu Arg Thr	115	120	125
Leu Glu Leu Gln Gln Trp Leu Asp Gln Gln Leu Gln Gln Gln Gly	130	135	140

Asn
145

<210> 109
<211> 107
<212> PRT
<213> *Chromatium vinosum*

<220> <221> VARIANT <222> 17, 38, 42, 55, 58, 60, 72, 107 <223> Xaa = Any Amino Acid			
<400> 109 Ser Asp Ser Ile Val His Val Thr Asp Asp Ser Phe Glu Glu Val	1 5	10 15	
Xaa Lys Ser Pro Asp Pro Val Leu Val Asp Tyr Trp Ala Asp Trp Cys	20	25	30
Gly Pro Cys Lys Met Xaa Ala Pro Val Xaa Asp Glu Ile Ala Asp Glu	35	40	45
Tyr Ala Gly Arg Val Lys Xaa Ala Lys Xaa Asn Xaa Asp Glu Asn Pro	50	55	60
Asn Thr Pro Pro Arg Tyr Gly Xaa Arg Gly Ile Pro Thr Leu Met Leu	65	70	80
Phe Arg Gly Gly Glu Val Glu Ala Thr Lys Val Gly Ala Val Ser Lys	85	90	95
Ser Gln Leu Thr Ala Phe Leu Asp Ser Asn Xaa	100	105	

<210> 110
<211> 107
<212> PRT
<213> *Clostridium litorale*

<400> 110
Met Leu Met Leu Asp Lys Asp Thr Phe Lys Thr Glu Val Leu Glu Gly
1 5 10 15
Thr Gly Tyr Val Leu Val Asp Tyr Phe Ser Asp Gly Cys Val Pro Cys
20 25 30
Lys Ala Leu Met Pro Ala Val Glu Glu Leu Ser Lys Lys Tyr Glu Gly
35 40 45
Arg Val Val Phe Ala Lys Leu Asn Thr Thr Gly Ala Arg Arg Leu Ala
50 55 60
Ile Ser Gln Lys Ile Leu Gly Leu Pro Thr Leu Ser Leu Tyr Lys Asp
65 70 75 80
Gly Val Lys Val Asp Glu Val Thr Lys Asp Asp Ala Thr Ile Glu Asn
85 90 95
Ile Glu Ala Met Val Glu Glu His Ile Ser Lys
100 105

<210> 111
<211> 40
<212> PRT
<213> Clostridium sporogenes

<400> 111
Met Leu Val Leu Asp Lys Lys Thr Phe Glu Glu Val Leu Lys Thr
1 5 10 15
Lys Gly Tyr Val Leu Val Asp Tyr Phe Gly Asp Gly Cys Val Pro Cys
20 25 30
Glu Ala Leu Met Pro Asp Val Glu
35 40

<210> 112
<211> 33
<212> PRT
<213> Clostridium sticklandii

<400> 112
Met Phe Glu Leu Asp Lys Asp Thr Phe Glu Thr Glu Val Leu Gln Gly
1 5 10 15
Thr Gly Tyr Val Leu Val Asp Phe Trp Ser Glu Gly Cys Glu Pro Cys
20 25 30
Lys

<210> 113
<211> 106
<212> PRT
<213> Coprinus comatus

<400> 113
Met Val Gln Val Ile Ser Asn Leu Asp Glu Phe Asn Lys Leu Thr Asn
1 5 10 15
Ser Gly Lys Ile Ile Ile Ile Asp Phe Trp Ala Thr Trp Cys Gly Pro
20 25 30
Cys Arg Val Ile Ser Pro Ile Phe Glu Lys Phe Ser Glu Lys Tyr Gly
35 40 45
Ala Asn Asn Ile Val Phe Ala Lys Val Asp Val Asp Thr Ala Ser Asp
50 55 60
Ile Ser Glu Glu Ala Lys Ile Arg Ala Met Pro Thr Phe Gln Val Tyr
65 70 75 80
Lys Asp Gly Gln Lys Ile Asp Glu Leu Val Gly Ala Asn Pro Thr Ala
85 90 95
Leu Glu Ser Leu Val Gln Lys Ser Leu Ala
100 105

<210> 114
 <211> 105
 <212> PRT
 <213> Dictyostelium discoideum

<400> 114
 Met Ser Asn Arg Val Ile His Val Ser Ser Cys Glu Glu Leu Asp Lys
 1 5 10 15
 His Leu Arg Asp Glu Arg Val Val Val Asp Phe Ser Ala Val Trp Cys
 20 25 30
 Gly Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu
 35 40 45
 Phe Ile Thr Phe Thr Phe Leu His Val Asp Ile Asp Lys Leu Asn Val
 50 55 60
 His Pro Ile Val Ser Lys Ile Lys Ser Val Pro Thr Phe His Phe Tyr
 65 70 75 80
 Arg Asn Gly Ser Lys Val Ser Glu Phe Ser Gly Ala Ser Glu Ser Ile
 85 90 95
 Leu Arg Ser Thr Leu Glu Ala Asn Lys
 100 105

<210> 115
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

<400> 115
 Met Ser Arg Val Ile His Ile Ser Ser Asn Glu Glu Leu Asp Lys His
 1 5 10 15
 Leu Gln Ala Glu Arg Leu Val Ile Asp Phe Ser Ala Ala Trp Cys Gly
 20 25 30
 Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu Phe
 35 40 45
 Val Thr Phe Thr Phe Val His Val Asp Ile Asp Lys Leu Ser Gly His
 50 55 60
 Pro Ile Val Lys Glu Ile Arg Ser Val Pro Thr Phe Tyr Phe Tyr Arg
 65 70 75 80
 Asn Gly Ala Lys Val Ser Glu Phe
 85

<210> 116
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

<400> 116
 Met Ser Arg Val Ile His Ile Ser Ser Asn Glu Glu Leu Asp Lys His
 1 5 10 15
 Leu Gln Ala Glu Arg Leu Val Ile Asp Phe Ser Ala Ala Trp Cys Gly
 20 25 30
 Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu Phe
 35 40 45
 Val Thr Phe Thr Phe Val His Val Asp Ile Asp Lys Leu Ser Gly His
 50 55 60
 Pro Ile Val Lys Glu Ile Arg Ser Val Pro Thr Phe Tyr Phe Tyr Arg
 65 70 75 80
 Asn Gly Ala Lys Val Ser Glu Phe
 85

<210> 117
 <211> 108
 <212> PRT
 <213> E. coli, salmonella typhimurium

<400> 117
 Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp Val
 1 5 10 15
 Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp Glu
 35 40 45
 Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn Pro
 50 55 60
 Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu Leu
 65 70 75 80
 Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser Lys
 85 90 95
 Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
 100 105

<210> 118
<211> 105
<212> PRT
<213> Synechocystis

<400> 118
 Met Ala Val Lys Lys Gln Phe Ala Asn Phe Ala Glu Met Leu Ala Gly
 1 5 10 15
 Ser Pro Lys Pro Val Leu Val Asp Phe Tyr Ala Thr Trp Cys Gly Pro
 20 25 30
 Cys Gln Met Met Ala Pro Ile Leu Glu Gln Val Gly Ser His Leu Arg
 35 40 45
 Gln Gln Ile Gln Val Val Lys Ile Asp Thr Asp Lys Tyr Pro Ala Ile
 50 55 60
 Ala Thr Gln Tyr Gln Ile Gln Ser Leu Pro Thr Leu Val Leu Phe Lys
 65 70 75 80
 Gln Gly Gln Pro Val His Arg Met Glu Gly Val Gln Gln Ala Ala Gln
 85 90 95
 Leu Ile Gln Gln Leu Gln Val Phe Val
 100 105

<210> 119
<211> 139
<212> PRT
<213> E. coli

<400> 119
 Met Asn Thr Val Cys Thr His Cys Gln Ala Ile Asn Arg Ile Pro Asp
 1 5 10 15
 Asp Arg Ile Glu Asp Ala Ala Lys Cys Gly Arg Cys Gly His Asp Leu
 20 25 30
 Phe Asp Gly Glu Val Ile Asn Ala Thr Gly Glu Thr Leu Asp Lys Leu
 35 40 45
 Leu Lys Asp Asp Leu Pro Val Val Ile Asp Phe Trp Ala Pro Trp Cys
 50 55 60
 Gly Pro Cys Arg Asn Phe Ala Pro Ile Phe Glu Asp Val Ala Gln Glu
 65 70 75 80
 Arg Ser Gly Lys Val Arg Phe Val Lys Val Asn Thr Glu Ala Glu Arg
 85 90 95
 Glu Leu Ser Ser Arg Phe Gly Ile Arg Ser Ile Pro Thr Ile Met Ile
 100 105 110
 Phe Lys Asn Gly Gln Val Val Asp Met Leu Asn Gly Ala Val Pro Lys
 115 120 125
 Ala Pro Phe Asp Ser Trp Leu Asn Glu Ser Leu
 130 135

<210> 120
<211> 110

<212> PRT

<213> Eubacterium acidaminophilum

<400> 120

Met	Ser	Ala	Leu	Leu	Val	Glu	Ile	Asp	Lys	Asp	Gln	Phe	Gln	Ala	Glu
1						5			10					15	
Val	Leu	Glu	Ala	Glu	Gly	Tyr	Val	Leu	Val	Asp	Tyr	Phe	Ser	Asp	Gly
						20			25				30		
Cys	Val	Pro	Cys	Lys	Ala	Leu	Met	Pro	Asp	Val	Glu	Glu	Leu	Ala	Ala
						35			40			45			
Lys	Tyr	Glu	Gly	Lys	Val	Ala	Phe	Arg	Lys	Phe	Asn	Thr	Ser	Ser	Ala
						50			55			60			
Arg	Arg	Leu	Ala	Ile	Ser	Gln	Lys	Ile	Leu	Gly	Leu	Pro	Thr	Ile	Thr
						65			70			75			80
Leu	Tyr	Lys	Gly	Gly	Gln	Lys	Val	Glu	Glu	Val	Thr	Lys	Asp	Asp	Ala
						85			90			95			
Thr	Arg	Glu	Asn	Ile	Asp	Ala	Met	Ile	Ala	Lys	His	Val	Gly		
						100			105			110			

<210> 121

<211> 107

<212> PRT

<213> Haemophilus influenzae

<400> 121

Met	Ser	Glu	Val	Leu	His	Ile	Asn	Asp	Ala	Asp	Phe	Glu	Ser	Val	Val
1							5			10			15		
Val	Asn	Ser	Asp	Ile	Pro	Ile	Leu	Leu	Asp	Phe	Trp	Ala	Pro	Trp	Cys
							20			25			30		
Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Val	Leu	Asp	Glu	Leu	Ala	Pro	Glu
							35			40			45		
Phe	Ala	Gly	Lys	Val	Lys	Ile	Val	Lys	Met	Asn	Val	Asp	Asp	Asn	Gln
							50			55			60		
Ala	Thr	Pro	Ala	Gln	Phe	Gly	Val	Arg	Ser	Ile	Pro	Thr	Leu	Leu	Leu
							65			70			75		80
Ile	Lys	Asn	Gly	Gln	Val	Val	Ala	Thr	Gln	Val	Gly	Ala	Leu	Pro	Lys
							85			90			95		
Thr	Gln	Leu	Ala	Asn	Phe	Ile	Asn	Gln	His	Ile					
							100			105					

<210> 122

<211> 167

<212> PRT

<213> Haemophilus influenzae

<400> 122

Met	Lys	Ile	Lys	Lys	Leu	Leu	Lys	Asn	Gly	Leu	Ser	Leu	Phe	Leu	Thr
1							5			10			15		
Phe	Ile	Val	Ile	Thr	Ser	Ile	Leu	Asp	Phe	Val	Arg	Arg	Pro	Val	Val
							20			25			30		
Pro	Glu	Glu	Ile	Asn	Lys	Ile	Thr	Leu	Gln	Asp	Leu	Gln	Gly	Asn	Thr
							35			40			45		
Phe	Ser	Leu	Glu	Ser	Leu	Asp	Gln	Asn	Lys	Pro	Thr	Leu	Leu	Tyr	Phe
							50			55			60		
Trp	Gly	Thr	Trp	Cys	Gly	Tyr	Cys	Arg	Tyr	Thr	Ser	Pro	Ala	Ile	Asn
							65			70			75		80
Ser	Leu	Ala	Lys	Glu	Gly	Tyr	Gln	Val	Val	Ser	Val	Ala	Leu	Arg	Ser
							85			90			95		
Gly	Asn	Glu	Ala	Asp	Val	Asn	Asp	Tyr	Leu	Ser	Lys	Asn	Asp	Tyr	His
							100			105			110		
Phe	Thr	Thr	Val	Asn	Asp	Pro	Lys	Gly	Glu	Phe	Ala	Glu	Arg	Trp	Gln
							115			120			125		
Ile	Asn	Val	Thr	Pro	Thr	Ile	Val	Leu	Leu	Ser	Lys	Gly	Lys	Met	Asp
							130			135			140		
Leu	Val	Thr	Thr	Gly	Leu	Thr	Ser	Tyr	Trp	Gly	Leu	Lys	Val	Arg	Leu

145 150 155 160
Phe Phe Ala Glu Phe Phe Gly
165

<210> 123
<211> 106
<212> PRT
<213> Helicobacter pylori

<400> 123
Met Ser His Tyr Ile Glu Leu Thr Glu Glu Asn Phe Glu Ser Thr Ile
1 5 10 15
Lys Lys Gly Val Ala Leu Val Asp Phe Trp Ala Pro Trp Cys Gly Pro
20 25 30
Cys Lys Met Leu Ser Pro Val Ile Asp Glu Leu Ala Ser Glu Tyr Glu
35 40 45
Gly Lys Ala Lys Ile Cys Lys Val Asn Thr Asp Glu Gln Glu Glu Leu
50 55 60
Ser Ala Lys Phe Gly Ile Arg Ser Ile Pro Thr Leu Leu Phe Thr Lys
65 70 75 80
Asp Gly Glu Val Val His Gln Leu Val Gly Val Gln Thr Lys Val Ala
85 90 95
Leu Lys Glu Gln Leu Asn Lys Leu Leu Gly
100 105

<210> 124
<211> 103
<212> PRT
<213> Listeria monocytogenes

<400> 124
Met Val Lys Glu Ile Thr Asp Ala Thr Phe Glu Gln Glu Thr Ser Glu
1 5 10 15
Gly Leu Val Leu Thr Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Arg
20 25 30
Met Val Ala Pro Val Leu Glu Ile Gln Glu Glu Arg Gly Glu Ala
35 40 45
Leu Lys Ile Val Lys Met Asp Val Asp Glu Asn Pro Glu Thr Pro Gly
50 55 60
Ser Phe Gly Val Met Ser Ile Pro Thr Leu Leu Ile Lys Lys Asp Gly
65 70 75 80
Glu Val Val Glu Thr Ile Ile Gly Tyr Arg Pro Lys Glu Glu Leu Asp
85 90 95
Glu Val Ile Asn Lys Tyr Val
100

<210> 125
<211> 85
<212> PRT
<213> Methanococcus jannaschii

<400> 125
Met Ser Lys Val Lys Ile Glu Leu Phe Thr Ser Pro Met Cys Pro His
1 5 10 15
Cys Pro Ala Ala Lys Arg Val Val Glu Glu Val Ala Asn Glu Met Pro
20 25 30
Asp Ala Val Glu Val Glu Tyr Ile Asn Val Met Glu Asn Pro Gln Lys
35 40 45
Ala Met Glu Tyr Gly Ile Met Ala Val Pro Thr Ile Val Ile Asn Gly
50 55 60
Asp Val Glu Phe Ile Gly Ala Pro Thr Lys Glu Ala Leu Val Glu Ala
65 70 75 80
Ile Lys Lys Arg Leu
85

<210> 126
<211> 102
<212> PRT
<213> Mycoplasma genitalium

<400> 126
Met Val Thr Glu Ile Arg Ser Leu Lys Gln Leu Glu Glu Ile Phe Ser
1 5 10 15
Ala Lys Lys Asn Val Ile Val Asp Phe Trp Ala Ala Trp Cys Gly Pro
20 25 30
Cys Lys Leu Thr Ser Pro Glu Phe Gln Lys Ala Ala Asp Glu Phe Ser
35 40 45
Asp Ala Gln Phe Val Lys Val Asn Val Asp Asp His Thr Asp Ile Ala
50 55 60
Ala Ala Tyr Asn Ile Thr Ser Leu Pro Thr Ile Val Val Phe Glu Asn
65 70 75 80
Gly Val Glu Lys Lys Arg Ala Ile Gly Phe Met Pro Lys Thr Lys Ile
85 90 95
Ile Asp Leu Phe Asn Asn
100

<210> 127
<211> 458
<212> PRT
<213> mycobacterium leprae

<400> 127
Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
1 5 10 15
Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
20 25 30
Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
35 40 45
Leu Met Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
50 55 60
Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
65 70 75 80
Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
85 90 95
Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
100 105 110
Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
115 120 125
Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
130 135 140
Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
145 150 155 160
Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
165 170 175
Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
180 185 190
Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn
195 200 205
His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg
210 215 220
Leu Arg Asn Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly
225 230 235 240
Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp
245 250 255
Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr
260 265 270
Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp
275 280 285
Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala
290 295 300

Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala
 305 310 315 320
 Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr
 325 330 335
 Asp Trp Ser Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile
 340 345 350
 Glu Val Thr Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys
 355 360 365
 Pro Val Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met
 370 375 380
 Val Ala Pro Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu
 385 390 395 400
 Thr Val Ala Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu
 405 410 415
 Phe Gln Val Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln
 420 425 430
 Pro Val Lys Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg
 435 440 445
 Asp Leu Ser Asp Val Val Pro Asn Leu Asn
 450 455

<210> 128

<211> 102

<212> PRT

<213> Mycoplasma pneumoniae

<400> 128
 Met Val Thr Glu Ile Lys Ser Leu Lys Gln Leu Gly Glu Leu Phe Ala
 1 5 10 15
 Ser Asn Asn Lys Val Ile Ile Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Lys Ile Thr Gly Pro Glu Phe Ala Lys Ala Ala Ser Glu Val Ser
 35 40 45
 Thr Val Ala Phe Ala Lys Val Asn Val Asp Glu Gln Thr Asp Ile Ala
 50 55 60
 Ala Ala Tyr Lys Ile Thr Ser Leu Pro Thr Ile Val Leu Phe Glu Lys
 65 70 75 80
 Gly Gln Glu Lys His Arg Ala Ile Gly Phe Met Pro Lys Ala Lys Ile
 85 90 95
 Val Gln Leu Val Ser Gln
 100

<210> 129

<211> 112

<212> PRT

<213> Mycobacterium smegmatis

<400> 129
 Met Ser Glu Asp Ser Ala Thr Val Ala Val Thr Asp Asp Ser Phe Ser
 1 5 10 15
 Thr Asp Val Leu Gly Ser Ser Lys Pro Val Leu Val Asp Phe Trp Ala
 20 25 30
 Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro Val Leu Glu Ile
 35 40 45
 Ala Ala Glu Lys Gly Asp Gln Leu Thr Val Ala Lys Ile Asp Val Asp
 50 55 60
 Val Asp Ala Asn Pro Ala Thr Ala Arg Asp Phe Gln Val Val Ser Ile
 65 70 75 80
 Pro Thr Met Ile Leu Phe Lys Asp Gly Ala Pro Val Lys Arg Ile Val
 85 90 95
 Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg Glu Leu Ser Asp Ala Leu
 100 105 110

<210> 130

<211> 115
<212> PRT
<213> Mycobacterium tuberculosis

<400> 130
Thr Asp Ser Glu Lys Ser Ala Thr Ile Lys Val Thr Asp Ala Ser Phe
1 5 10 15
Ala Thr Asp Val Leu Ser Ser Asn Lys Pro Val Leu Val Asp Phe Trp
20 25 30
Ala Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro Val Leu Glu Glu
35 40 45
Ile Ala Thr Glu Arg Ala Thr Asp Leu Thr Val Ala Lys Leu Asp Val
50 55 60
Asp Thr Asn Pro Glu Thr Ala Arg Asn Phe Gln Val Val Ser Ile Pro
65 70 75 80
Thr Leu Ile Leu Phe Lys Asp Gly Gln Pro Val Lys Arg Ile Val Gly
85 90 95
Ala Lys Gly Lys Ala Ala Leu Leu Arg Glu Leu Ser Asp Val Val Pro
100 105 110
Asn Leu Asn
115

<210> 131
<211> 127
<212> PRT
<213> Neurospora crassa

<400> 131
Met Ser Asp Gly Val Lys His Ile Asn Ser Ala Gln Glu Phe Ala Asn
1 5 10 15
Leu Leu Asn Thr Thr Gln Tyr Val Val Ala Asp Phe Tyr Ala Asp Trp
20 25 30
Cys Gly Pro Cys Lys Ala Ile Ala Pro Met Tyr Ala Gln Phe Ala Lys
35 40 45
Thr Phe Ser Ile Pro Asn Phe Leu Ala Phe Ala Lys Ile Asn Val Asp
50 55 60
Ser Val Gln Gln Val Ala Gln His Tyr Arg Val Ser Ala Met Pro Thr
65 70 75 80
Phe Leu Phe Phe Lys Asn Gly Lys Gln Val Ala Val Asn Gly Ser Val
85 90 95
Met Ile Gln Gly Ala Asp Val Asn Ser Leu Arg Ala Ala Ala Glu Lys
100 105 110
Met Gly Arg Leu Ala Lys Glu Lys Ala Ala Ala Ala Gly Ser Ser
115 120 125

<210> 132
<211> 106
<212> PRT
<213> Penicillium chrysogenum

<400> 132
Met Gly Val Thr Pro Ile Lys Ser Val Ala Glu Tyr Lys Glu Lys Val
1 5 10 15
Thr Asp Ala Thr Gly Pro Val Val Val Asp Phe His Ala Thr Trp Cys
20 25 30
Gly Pro Cys Lys Ala Ile Ala Pro Ala Leu Glu Lys Leu Ser Glu Thr
35 40 45
His Thr Gly Ile Gln Phe Tyr Lys Val Asp Val Asp Glu Leu Ser Glu
50 55 60
Val Ala Ala Ser Asn Gly Val Ser Ala Met Pro Thr Phe His Phe Tyr
65 70 75 80
Lys Gly Gly Glu Arg Asn Glu Glu Val Lys Gly Ala Asn Pro Ala Ala
85 90 95
Ile Gln Ala Gly Val Lys Ala Ile Leu Glu
100 105

<210> 133
 <211> 108
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 133
 Met Ser Glu His Ile Val Asn Val Thr Asp Ala Ser Phe Glu Gln Asp
 1 5 10 15
 Val Leu Lys Ala Asp Gly Pro Val Leu Val Asp Tyr Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Val Leu Asp Glu Val Ala Arg
 35 40 45
 Asp Tyr Gln Gly Lys Leu Lys Val Cys Lys Leu Asn Ile Asp Glu Asn
 50 55 60
 Gln Asp Thr Pro Pro Lys Tyr Gly Val Arg Gly Ile Pro Thr Leu Met
 65 70 75 80
 Leu Phe Lys Asp Gly Asn Val Glu Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 Lys Ser Gln Leu Ala Ala Phe Leu Asp Ala Asn Ile
 100 105

<210> 134
 <211> 104
 <212> PRT
 <213> *Rhodospirillum rubrum*

<220>
 <221> VARIANT
 <222> 21, 35
 <223> Xaa = Any Amino Acid

<400> 134
 Met Lys Gln Val Ser Asp Ala Ser Phe Glu Glu Asp Val Leu Lys Ala
 1 5 10 15
 Asp Gly Pro Asn Xaa Val Asp Phe Trp Ala Glu Trp Cys Gly Pro Cys
 20 25 30
 Arg Gln Xaa Ala Pro Ala Leu Glu Glu Leu Ala Thr Ala Leu Gly Asp
 35 40 45
 Lys Val Thr Val Ala Lys Ile Asn Ile Asp Glu Asn Pro Gln Thr Pro
 50 55 60
 Ser Lys Tyr Gly Val Arg Gly Ile Pro Thr Leu Met Ile Phe Lys Asp
 65 70 75 80
 Gly Gln Val Ala Ala Thr Lys Ile Gly Ala Leu Pro Lys Thr Lys Leu
 85 90 95
 Phe Glu Trp Val Glu Ala Ser Val
 100

<210> 135
 <211> 105
 <212> PRT
 <213> *Rhodobacter sphaeroides*

<400> 135
 Ser Thr Val Pro Val Thr Asp Ala Thr Phe Asp Thr Glu Val Arg Lys
 1 5 10 15
 Ser Asp Val Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Arg Gln Ile Gly Pro Ala Leu Glu Glu Leu Ser Lys Glu Tyr Ala
 35 40 45
 Gly Lys Val Lys Ile Val Lys Val Asn Val Asp Glu Asn Pro Glu Ser
 50 55 60
 Pro Ala Met Leu Gly Val Arg Gly Ile Pro Ala Leu Phe Leu Phe Lys
 65 70 75 80
 Asn Gly Gln Val Val Ser Asn Lys Val Gly Ala Ala Pro Lys Ala Ala

85	90	95
Leu Ala Thr Trp Ile Ala Ser Ala Leu		
100	105	

<210> 136
<211> 130
<212> PRT
<213> Rickettsia prowazekii

<400> 136

Met Ser Cys Tyr Asn Glu Ile Thr Thr	Leu Leu Glu Phe Asp Ser Asn	
1 5	10 15	
Asp Ile Asn Thr Thr Gln Arg Ile Asn Met Val Asn Asn Val Thr Asp		
20 25 30		
Ser Ser Phe Lys Asn Glu Val Leu Glu Ser Asp Leu Pro Val Met Val		
35 40 45		
Asp Phe Trp Ala Glu Trp Cys Gly Pro Cys Lys Met Leu Ile Pro Ile		
50 55 60		
Ile Asp Glu Ile Ser Lys Glu Leu Gln Asp Lys Val Lys Val Leu Lys		
65 70 75 80		
Met Asn Ile Asp Glu Asn Pro Lys Thr Pro Ser Glu Tyr Gly Ile Arg		
85 90 95		
Ser Ile Pro Thr Ile Met Leu Phe Lys Asn Gly Glu Gln Lys Asp Thr		
100 105 110		
Lys Ile Gly Leu Gln Gln Lys Asn Ser Leu Leu Asp Trp Ile Asn Lys		
115 120 125		
Ser Ile		
130		

<210> 137
<211> 106
<212> PRT
<213> Streptomyces aureofaciens

<400> 137

Gly Ala Thr Val Lys Val Thr Asn Ala Thr Phe Lys Ser Asp Val Leu		
1 5 10 15		
Glu Ser Asp Lys Pro Val Leu Val His Phe Glu Gly Pro Trp Cys Gly		
20 25 30		
Pro Cys Lys Met Val Ala Pro Val Leu Asp Glu Ile Ala Asn Glu Tyr		
35 40 45		
Glu Gly Lys Val Lys Val Ala Lys Val Asn Thr Asp Glu Asn Pro Gln		
50 55 60		
Leu Ala Ser Gln Tyr Gly Val Arg Ser Ile Pro Thr Arg Leu Met Phe		
65 70 75 80		
Lys Gly Gly Glu Val Ala Ala Asn Met Val Gly Ala Ala Pro Lys Thr		
85 90 95		
Arg Leu Ala Ala Phe Leu Asp Ala Ser Leu		
100 105		

<210> 138
<211> 110
<212> PRT
<213> Streptomyces coelicolor

<400> 138

Met Ala Gly Thr Leu Lys His Val Thr Asp Asp Ser Phe Glu Gln Asp		
1 5 10 15		
Val Leu Lys Asn Asp Lys Pro Val Leu Val Asp Phe Trp Ala Ala Trp		
20 25 30		
Cys Gly Pro Cys Arg Gln Ile Ala Pro Ser Leu Glu Ala Ile Ala Ala		
35 40 45		
Glu Tyr Gly Asp Lys Ile Glu Ile Val Lys Leu Asn Ile Asp Glu Asn		
50 55 60		

Pro Gly Thr Ala Ala Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Asn
65 70 75 80
Val Tyr Gln Gly Gly Glu Val Ala Lys Thr Ile Val Gly Ala Lys Pro
85 90 95
Lys Ala Ala Ile Val Arg Asp Leu Glu Asp Phe Ile Ala Asp
100 105 110

<210> 139
<211> 107
<212> PRT
<213> Streptomyces clavuligerus

<400> 139
Met Ala Gly Val Leu Lys Asn Val Thr Asp Asp Thr Phe Glu Ala Asp
1 5 10 15
Val Leu Lys Ser Glu Lys Pro Val Leu Val Asp Phe Trp Ala Glu Trp
20 25 30
Cys Gly Pro Cys Arg Gln Ile Ala Pro Ser Leu Glu Ala Ile Thr Glu
35 40 45
His Gly Gly Gln Ile Glu Ile Val Lys Leu Asn Ile Asp Gln Asn Pro
50 55 60
Ala Thr Ala Ala Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Asn Val
65 70 75 80
Tyr Gln Gly Gly Glu Val Val Lys Thr Ile Val Gly Ala Lys Pro Lys
85 90 95
Ala Ala Leu Leu Arg Pro Gly Pro Val Pro Arg
100 105

<210> 140
<211> 106
<212> PRT
<213> Synechocystis

<400> 140
Ser Ala Thr Pro Gln Val Ser Asp Ala Ser Phe Lys Glu Asp Val Leu
1 5 10 15
Asp Ser Glu Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20 25 30
Pro Cys Arg Met Val Ala Pro Val Val Asp Glu Ile Ser Gln Gln Tyr
35 40 45
Glu Gly Lys Val Lys Val Val Lys Leu Asn Thr Asp Glu Asn Pro Asn
50 55 60
Thr Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
65 70 75 80
Lys Gly Gly Gln Arg Val Asp Met Val Val Gly Ala Val Pro Lys Thr
85 90 95
Thr Leu Ala Ser Thr Leu Glu Lys Tyr Leu
100 105

<210> 141
<211> 109
<212> PRT
<213> Synechocystis

<400> 141
Met Ser Leu Leu Glu Ile Thr Asp Ala Glu Phe Glu Gln Glu Thr Gln
1 5 10 15
Gly Gln Thr Lys Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys Gly
20 25 30
Pro Cys Arg Leu Met Ala Pro Ala Ile Gln Ala Ile Ala Lys Asp Tyr
35 40 45
Gly Asp Lys Leu Lys Val Leu Lys Leu Glu Val Asp Pro Asn Pro Ala
50 55 60
Ala Val Ala Gln Cys Lys Val Glu Gly Val Pro Ala Leu Arg Leu Phe

65	70	75	80
Lys Asn Asn Glu Leu Val Met Thr His	Glu Gly Ala Ile Ala Lys	Pro	
85	90		95
Lys Leu Leu Glu Leu Leu Lys Glu Glu	Leu Asp Phe Ile		
100	105		

<210> 142
<211> 108
<212> PRT
<213> Thiobacillus ferrooxidans

1	5	10	15
Met Ser Asp Ala Ile Leu Tyr Val Ser Asp Asp Ser Phe Glu Thr Asp			
Val Leu Lys Ser Ser Lys Pro Val Leu Val Asp Phe Trp Ala Glu Trp			
20	25	30	
Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Glu Glu Ile Ala Asp			
35	40	45	
Glu Tyr Ala Asp Arg Leu Arg Val Ala Lys Phe Asn Ile Asp Glu Asn			
50	55	60	
Pro Asn Thr Pro Pro Gln Tyr Ala Ile Arg Gly Ile Pro Thr Leu Leu			
65	70	75	80
Leu Phe Lys Ala Gly Lys Leu Glu Ala Thr Lys Val Gly Ala Leu Ser			
85	90	95	
Lys Ala Gln Leu Thr Ala Phe Leu Asp Ser Gln Leu			
100	105		

<210> 143
<211> 91
<212> PRT
<213> Thiocapsa roseopersicina

1	5	10	15
Met Ser Asp Ser Ile Val His Val Thr Asp Asp Ser Phe Glu Asp Glu			
Val Leu Lys Ser Leu Glu Pro Val Leu Val Asp Tyr Trp Ala Asp Trp			
20	25	30	
Cys Gly Pro Cys Lys Met Ile Ala Pro Val Leu Asp Glu Ile Ala Gly			
35	40	45	
Glu Tyr Ala Gly Arg Ile Lys Val Ala Lys Leu Asn Ile Asp Glu Asn			
50	55	60	
Pro Asn Thr Pro Arg Arg Tyr Gly Ile Arg Gly Ile Pro Thr Leu Met			
65	70	75	80
Leu Ser Arg Gln Ser Glu Val Glu Ala Thr Lys			
85	90		

<210> 144
<211> 44
<212> PRT
<213> Tissierella creatinophila

1	5	10	15
Met Ile Glu Leu Asp Lys Ser Asn Phe Glu Glu Glu Val Leu Lys Ala			
Glu Gly Thr Val Leu Val Asp Phe Trp Ser Pro Ser Cys Glu Pro Cys			
20	25	30	
Lys Ala Leu Met Pro His Val His Asp Phe Glu Glu			
35	40		

<210> 145
<211> 105
<212> PRT
<213> Treponema pallidum

<400> 145
Met Ala Leu Leu Asp Ile Ser Ser Gly Asn Val Arg Lys Thr Ile Glu
1 5 10 15
Thr Asn Pro Leu Val Ile Val Asp Phe Trp Ala Pro Trp Cys Gly Ser
20 25 30
Cys Lys Met Leu Gly Pro Val Leu Glu Glu Val Glu Ser Glu Val Gly
35 40 45
Ser Gly Val Val Ile Gly Lys Leu Asn Val Asp Asp Asp Gln Asp Leu
50 55 60
Ala Val Glu Phe Asn Val Ala Ser Ile Pro Thr Leu Ile Val Phe Lys
65 70 75 80
Asp Gly Lys Glu Val Asp Arg Ser Ile Gly Phe Val Asp Lys Ser Lys
85 90 95
Ile Leu Thr Leu Ile Gln Lys Asn Ala
100 105

<210> 146
<211> 104
<212> PRT
<213> Bos taurus

<400> 146
Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
1 5 10 15
Ala Gly Glu Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
50 55 60
Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Asn Glu Leu Ile
100

<210> 147
<211> 166
<212> PRT
<213> Bos taurus

<400> 147
Met Ala Gln Arg Leu Leu Leu Arg Arg Phe Leu Thr Ser Ile Ile Ser
1 5 10 15
Gly Lys Pro Ser Gln Ser Arg Trp Ala Pro Val Ala Ser Arg Ala Leu
20 25 30
Lys Thr Pro Gln Tyr Ser Pro Gly Tyr Leu Thr Val Thr Pro Ser Gln
35 40 45
Ala Arg Ser Ile Tyr Thr Arg Val Cys Ser Thr Thr Phe Asn Ile
50 55 60
Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
65 70 75 80
Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
85 90 95
Gly Pro Arg Leu Glu Lys Val Val Ala Lys Gln His Gly Lys Val Val
100 105 110
Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Leu Glu Tyr
115 120 125
Glu Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val
130 135 140
Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
145 150 155 160
Leu Lys Lys Leu Ile Gly
165

<210> 148
<211> 115
<212> PRT
<213> *Caenorhabditis elegans*

<400> 148
Met Leu Lys Arg Cys Asn Phe Lys Asn Gln Val Lys Tyr Phe Gln Ser
1 5 10 15
Asp Phe Glu Gln Leu Ile Arg Gln His Pro Glu Lys Ile Ile Ile Leu
20 25 30
Asp Phe Tyr Ala Thr Trp Cys Gly Pro Cys Lys Ala Ile Ala Pro Leu
35 40 45
Tyr Lys Glu Leu Ala Thr Thr His Lys Gly Ile Ile Phe Cys Lys Val
50 55 60
Asp Val Asp Glu Ala Glu Asp Leu Cys Ser Lys Tyr Asp Val Lys Met
65 70 75 80
Met Pro Thr Phe Ile Phe Thr Lys Asn Gly Asp Ala Ile Glu Ala Leu
85 90 95
Glu Gly Cys Val Glu Asp Glu Leu Arg Gln Lys Val Leu Glu His Val
100 105 110
Ser Ala Gln
115

<210> 149
<211> 20
<212> PRT
<213> *Canis familiaris*

<400> 149
Val Lys Gln Ile Glu Phe Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
1 5 10 15
Ala Gly Asp Lys
20

<210> 150
<211> 104
<212> PRT
<213> *Gallus gallus*

<400> 150
Val Lys Ser Val Gly Asn Leu Ala Asp Phe Glu Ala Glu Leu Lys Ala
1 5 10 15
Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Phe
35 40 45
Gly Asp Val Val Phe Ile Glu Ile Asp Val Asp Asp Ala Gln Asp Val
50 55 60
Ala Thr His Cys Asp Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
65 70 75 80
Asn Gly Lys Lys Val Gln Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Glu Thr Ile Lys Ser Leu Val
100

<210> 151
<211> 107
<212> PRT
<213> *Drosophila melanogaster*

<400> 151
Met Ala Ser Val Arg Thr Met Asn Asp Tyr His Lys Arg Ile Glu Ala
1 5 10 15

Ala Asp Asp Lys Leu Ile Val Leu Asp Phe Tyr Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Glu Met Glu Ser Thr Val Lys Ser Leu Ala Arg Lys Tyr
 35 40 45
 Ser Ser Lys Ala Val Val Leu Lys Ile Asp Val Asp Lys Phe Glu Glu
 50 55 60
 Leu Thr Glu Arg Tyr Lys Val Arg Ser Met Pro Thr Phe Val Phe Leu
 65 70 75 80
 Arg Gln Asn Arg Arg Leu Ala Ser Phe Ala Gly Ala Asp Glu His Lys
 85 90 95
 Leu Thr Asn Met Met Ala Lys Leu Val Lys Ala
 100 105

<210> 152
 <211> 104
 <212> PRT
 <213> Homo sapien

<400> 152
 Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp Ala
 1 5 10 15
 Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
 35 40 45
 Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Cys Gln Asp Val
 50 55 60
 Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Val
 100

<210> 153
 <211> 166
 <212> PRT
 <213> Homo sapien

<400> 153
 Met Ala Gln Arg Leu Leu Leu Arg Arg Phe Leu Ala Ser Val Ile Ser
 1 5 10 15
 Arg Lys Pro Ser Gln Gly Gln Trp Pro Pro Leu Thr Ser Lys Ala Leu
 20 25 30
 Gln Thr Pro Gln Cys Ser Pro Gly Gly Leu Thr Val Thr Pro Asn Pro
 35 40 45
 Ala Arg Thr Ile Tyr Thr Arg Ile Ser Leu Thr Thr Phe Asn Ile
 50 55 60
 Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65 70 75 80
 Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
 85 90 95
 Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
 100 105 110
 Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
 115 120 125
 Glu Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val
 130 135 140
 Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
 145 150 155 160
 Leu Lys Lys Leu Ile Gly
 165

<210> 154

<211> 104
<212> PRT
<213> Macaca mulatta

<400> 154
Val Lys Gln Ile Glu Ser Lys Ala Ala Phe Gln Glu Ala Leu Asp Asp
1 5 10 15
Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe His Ser Leu Ser Glu Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
50 55 60
Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Asn Glu Leu Val
100

<210> 155
<211> 104
<212> PRT
<213> Mus musculus

<400> 155
Val Lys Leu Ile Glu Ser Lys Glu Ala Phe Gln Glu Ala Leu Ala Ala
1 5 10 15
Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe His Ser Leu Cys Asp Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
50 55 60
Ala Ala Asp Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Ser Ile Thr Glu Tyr Ala
100

<210> 156
<211> 166
<212> PRT
<213> Mus musculus

<400> 156
Met Ala Gln Arg Leu Leu Leu Gly Arg Phe Leu Thr Ser Val Ile Ser
1 5 10 15
Arg Lys Pro Pro Gln Gly Val Trp Ala Ser Leu Thr Ser Lys Thr Leu
20 25 30
Gln Thr Pro Gln Tyr Asn Ala Gly Gly Leu Thr Val Met Pro Ser Pro
35 40 45
Ala Arg Thr Val His Thr Thr Arg Val Cys Leu Thr Thr Phe Asn Val
50 55 60
Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
65 70 75 80
Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
85 90 95
Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
100 105 110
Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
115 120 125
Glu Val Ser Ala Val Pro Thr Val Leu Ala Ile Lys Asn Gly Asp Val
130 135 140

Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
145 150 155 160
Leu Lys Lys Leu Ile Gly
165

<210> 157
<211> 33
<212> PRT
<213> Sus scrofa

<400> 157
Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
1 5 10 15
Ala Gly Glu Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30

Pro

<210> 158
<211> 104
<212> PRT
<213> Oryctolagus cuniculus

<400> 158
Val Lys Gln Ile Glu Ser Lys Ser Ala Phe Gln Glu Val Leu Asp Ser
1 5 10 15
Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ala Leu Ser Glu Lys Phe
35 40 45
Asn Asn Val Val Phe Ile Glu Val Asp Val Asp Cys Lys Asp Ile
50 55 60
Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Asn Glu Leu Leu
100

<210> 159
<211> 104
<212> PRT
<213> Rattus norvegicus

<400> 159
Val Lys Leu Ile Glu Ser Lys Glu Ala Phe Gln Glu Ala Leu Ala Ala
1 5 10 15
Ala Gly Asp Lys Leu Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Cys Gln Asp Val
50 55 60
Ala Ala Asp Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Thr Glu Phe Ala
100

<210> 160
<211> 166
<212> PRT

<213> Rattus norvegicus

<400> 160

Met Ala Gln Arg Leu Leu Leu Arg Arg Phe Leu Thr Ser Val Ile Ser
1 5 10 15
Arg Lys Pro Pro Gln Gly Val Trp Ala Ser Leu Thr Ser Thr Ser Leu
20 25 30
Gln Thr Pro Pro Tyr Asn Ala Gly Gly Leu Thr Gly Thr Pro Ser Pro
35 40 45
Ala Arg Thr Phe His Thr Thr Arg Val Cys Ser Thr Thr Phe Asn Val
50 55 60
Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
65 70 75 80
Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
85 90 95
Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
100 105 110
Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
115 120 125
Glu Val Ser Ala Val Pro Thr Val Leu Ala Ile Lys Asn Gly Asp Val
130 135 140
Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
145 150 155 160
Leu Lys Lys Leu Ile Gly
165

<210> 161

<211> 104

<212> PRT

<213> Ovis aries

<400> 161

Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
1 5 10 15
Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Cys Gln Asp Val
50 55 60
Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
65 70 75 80
Lys Gly Gln Lys Val Ser Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Asn Glu Leu Ile
100

<210> 162

<211> 261

<212> PRT

<213> Arabidopsis thaliana

<400> 162

Met Ala Arg Leu Val Phe Ser Leu Asn Leu Pro Ser Ser His Gly Phe
1 5 10 15
Asn Leu Ser Pro Arg Asn Leu Gln Ser Phe Phe Val Thr Gln Thr Gly
20 25 30
Ala Pro Arg Phe Arg Ala Val Arg Cys Lys Pro Asn Pro Glu Ser Ser
35 40 45
Glu Thr Lys Gln Glu Lys Leu Val Ile Asp Asn Gly Glu Thr Ser Ser
50 55 60
Ala Ser Lys Glu Val Glu Ser Ser Ser Ser Val Ala Asp Ser Ser Ser
65 70 75 80
Ser Ser Ser Ser Gly Phe Pro Glu Ser Pro Asn Lys Asp Ile Asn Arg
85 90 95

Arg Val Ala Ala Val Thr Val Ile Ala Ala Leu Ser Leu Phe Val Ser
 100 105 110
 Thr Arg Leu Asp Phe Gly Ile Ser Leu Lys Asp Leu Thr Ala Ser Ala
 115 120 125
 Leu Pro Tyr Glu Glu Ala Leu Ser Asn Gly Lys Pro Thr Val Val Glu
 130 135 140
 Phe Tyr Ala Asp Trp Cys Glu Val Cys Arg Glu Leu Ala Pro Asp Val
 145 150 155 160
 Tyr Lys Ile Glu Gln Gln Tyr Lys Asp Lys Val Asn Phe Val Met Leu
 165 170 175
 Asn Val Asp Asn Thr Lys Trp Glu Gln Glu Leu Asp Glu Phe Gly Val
 180 185 190
 Glu Gly Ile Pro His Phe Ala Phe Leu Asp Arg Glu Gly Asn Glu Glu
 195 200 205
 Gly Asn Val Val Gly Arg Leu Pro Arg Gln Tyr Leu Val Glu Asn Val
 210 215 220
 Asn Ala Leu Ala Ala Gly Lys Gln Ser Ile Pro Tyr Ala Arg Ala Val
 225 230 235 240
 Gly Gln Tyr Ser Ser Glu Ser Arg Lys Val His Gln Val Thr Asp
 245 250 255
 Pro Leu Ser His Gly
 260

<210> 163
 <211> 140
 <212> PRT
 <213> Arabidopsis thaliana

<400> 163
 Met Gly Ser Cys Val Ser Lys Gly Lys Gly Asp Asp Asp Ser Val His
 1 5 10 15
 Asn Val Glu Phe Ser Gly Gly Asn Val His Leu Ile Thr Thr Lys Glu
 20 25 30
 Ser Trp Asp Asp Lys Leu Ala Glu Ala Asp Arg Asp Gly Lys Ile Val
 35 40 45
 Val Ala Asn Phe Ser Ala Thr Trp Cys Gly Pro Cys Lys Ile Val Ala
 50 55 60
 Pro Phe Phe Ile Glu Leu Ser Glu Lys His Ser Ser Leu Met Phe Leu
 65 70 75 80
 Leu Val Asp Val Asp Glu Leu Ser Asp Phe Ser Ser Ser Trp Asp Ile
 85 90 95
 Lys Ala Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Gly
 100 105 110
 Lys Leu Val Gly Ala Asn Lys Pro Glu Leu Gln Lys Lys Val Thr Ser
 115 120 125
 Ile Ile Asp Ser Val Pro Glu Ser Pro Gln Arg Pro
 130 135 140

<210> 164
 <211> 186
 <212> PRT
 <213> Arabidopsis thaliana

<400> 164
 Met Ser Glu Ile Val Asn Leu Ser Ser Ser Leu Arg Ser Leu Asn Pro
 1 5 10 15
 Lys Ile Ser Pro Leu Val Pro Pro Tyr Arg Gln Thr Ser Ser Ser Phe
 20 25 30
 Ser Arg Pro Arg Asn Phe Lys Tyr His Ser Phe Thr Asp Lys Ile Cys
 35 40 45
 Leu Ala Ala Glu Arg Ile Arg Ala Val Asp Ile Gln Lys Gln Asp Gly
 50 55 60
 Gly Leu Gln Glu Leu Asp Asp Ser Pro Val Ser Val Glu Leu Gly Pro
 65 70 75 80
 Ile Cys Gly Glu Ser His Phe Asp Gln Val Met Glu Asp Ala Gln Lys

85	90	95	
Leu Gly Glu Ser Val Val Ile Val Trp Met Ala Ala Trp Cys Arg Lys			
100	105	110	
Cys Ile Tyr Leu Lys Pro Lys Leu Glu Lys Leu Ala Ala Glu Phe Tyr			
115	120	125	
Pro Arg Leu Arg Phe Tyr His Val Asp Val Asn Ala Val Pro Tyr Arg			
130	135	140	
Leu Val Ser Arg Ala Gly Val Thr Leu Trp Arg Asp Gly Gln Lys Gln			
145	150	155	160
Ala Glu Val Ile Gly Gly His Lys Ala His Phe Val Val Asn Glu Val			
165	170	175	
Arg Glu Met Ile Glu Asn Asp Ser Ile Thr			
180	185		

<210> 165
<211> 207
<212> PRT
<213> Arabidopsis thaliana

<400> 165			
Met Glu Asn Met Ser Asn Leu Thr Ser Lys Phe Leu Leu Asn Pro Leu			
1	5	10	15
Asn Val His Lys His Cys Ala Val Ser Asp Glu Asn Gly Asp Arg Lys			
20	25	30	
Ser His Val Leu Lys Gln Val Cys Ser Cys Ile Cys Cys Cys Asn Arg			
35	40	45	
Arg Asn Lys Thr Gln Ala Arg Ser Gln Lys Gly Ser Tyr Phe Ile Lys			
50	55	60	
Gly Lys Val His Pro Val Ser Arg Met Glu Lys Trp Glu Glu Lys Ile			
65	70	75	80
Thr Glu Ala Asn Ser His Gly Lys Ile Ile Ala Arg His Asp Leu Ile			
85	90	95	
Leu Cys Asn Met Glu Gln Leu Val Val Asn Phe Lys Ala Ser Trp Cys			
100	105	110	
Leu Pro Ser Lys Thr Ile Leu Pro Ile Tyr Gln Glu Leu Ala Ser Thr			
115	120	125	
Tyr Thr Ser Met Ile Phe Val Thr Ile Asp Val Glu Glu Leu Ala Ile			
130	135	140	
Ser Lys Leu Ser Asp Leu Gly Val Lys Ile Cys Leu Ile Gln Glu Phe			
145	150	155	160
Ser His Glu Trp Asn Val Asp Ala Thr Pro Thr Val Val Phe Leu Lys			
165	170	175	
Asp Gly Arg Gln Met Asp Lys Leu Val Gly Gly Asp Ala Ala Glu Leu			
180	185	190	
Gln Lys Lys Thr Ala Ala Ala Asn Leu Leu Leu Arg Gln Ser			
195	200	205	

<210> 166
<211> 175
<212> PRT
<213> Arabidopsis thaliana

<400> 166			
Met Leu Ile Pro His Ala Val Ser Phe Ala Phe Thr Tyr Leu Arg Asn			
1	5	10	15
Ser Ala Asn Pro Asp Gln Asn Arg Glu Val Ile Ser Ile His Ser Thr			
20	25	30	
Ser Glu Leu Glu Ala Lys Thr Lys Ala Ala Lys Lys Ala Ser Arg Leu			
35	40	45	
Leu Ile Leu Tyr Phe Thr Ala Thr Trp Cys Gly Pro Cys Arg Tyr Met			
50	55	60	
Ser Pro Leu Tyr Ser Asn Leu Ala Thr Gln His Ser Arg Val Val Phe			
65	70	75	80
Leu Lys Val Asp Ile Asp Lys Ala Asn Asp Val Ala Ala Ser Trp Asn			
85	90	95	

Ile	Ser	Ser	Val	Pro	Thr	Phe	Cys	Phe	Ile	Arg	Asp	Gly	Lys	Glu	Val
			100			105							110		
Asp	Lys	Val	Val	Gly	Ala	Asp	Lys	Gly	Ser	Leu	Glu	Gln	Lys	Ile	Ala
	115					120							125		
Gln	His	Ser	Ser	Ser	Lys	Ala	Arg	Tyr	Ile	Pro	Val	Phe	Ile	Lys	Tyr
	130				135							140			
His	Ser	Asp	Leu	Leu	Leu	Leu	Val	Asn	Glu	Glu	Thr	Pro	Thr	Ser	Asn
	145				150				155					160	
Gln	Lys	Leu	Lys	Thr	Lys	Thr	Gly	Asp	Trp	Phe	His	Ile	Asn	Leu	
	165					170							175		

<210> 167
<211> 132
<212> PRT
<213> Arabidopsis thaliana

<400>	167														
Met	Arg	Lys	Gln	Glu	Ser	Glu	Gly	Ala	Asn	Leu	Glu	Phe	Glu	Ser	Lys
					5				10					15	
Ser	Asn	Asp	Asn	Gly	Asn	Val	Lys	Ile	Ala	Pro	Asn	Asp	Gln	Ser	Phe
						20		25						30	
Leu	Thr	Ile	Leu	Asp	Asp	Ile	Lys	Ser	Ser	Lys	Ser	Pro	Ala	Val	Ile
						35		40					45		
Asn	Tyr	Gly	Ala	Ser	Trp	Tyr	Thr	Leu	Phe	Ser	Val	Phe	Thr	Ile	Thr
						50		55				60			
Leu	Phe	Met	Leu	Ile	Lys	Cys	Ser	Met	Lys	Cys	Leu	Asn	Glu	Asn	Gly
					65		70		75		80				
Phe	Val	Leu	Lys	Leu	Ser	Asp	Ile	Asp	Glu	Cys	Pro	Glu	Thr	Thr	Arg
						85		90				95			
His	Ile	Arg	Tyr	Thr	Pro	Thr	Phe	Gln	Phe	Tyr	Arg	Asp	Gly	Glu	Lys
						100		105				110			
Val	Asp	Glu	Met	Phe	Gly	Ala	Gly	Glu	Gln	Arg	Leu	His	Asp	Arg	Leu
						115		120				125			
Trp	Leu	His	Ser												
	130														

<210> 168
<211> 151
<212> PRT
<213> Arabidopsis thaliana

<400>	168														
Met	Ala	Ser	Ile	Ser	Leu	Ser	Ser	Ser	Thr	Val	Pro	Ser	Leu	Asn	Ser
						1	5		10		15				
Lys	Glu	Ser	Ser	Gly	Val	Ser	Ala	Phe	Ala	Ser	Arg	Ser	Ile	Ser	Ala
						20		25				30			
Val	Lys	Phe	Gln	Phe	Pro	Val	Arg	Arg	Ile	Glu	Ala	Lys	Lys	Gln	Thr
						35		40			45				
Phe	Asp	Ser	Phe	Glu	Asp	Leu	Leu	Val	Asn	Ser	Asp	Lys	Pro	Val	Leu
						50		55			60				
Val	Asp	Tyr	Tyr	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Gln	Phe	Met	Val	Pro
						65		70		75		80			
Ile	Leu	Asn	Glu	Val	Ser	Glu	Thr	Leu	Lys	Asp	Lys	Ile	Gln	Val	Val
						85		90			95				
Lys	Ile	Asp	Thr	Glu	Lys	Tyr	Pro	Ser	Ile	Ala	Asn	Lys	Tyr	Lys	Ile
						100		105				110			
Glu	Ala	Leu	Pro	Thr	Phe	Ile	Leu	Phe	Lys	Asp	Gly	Glu	Pro	Cys	Asp
						115		120				125			
Arg	Phe	Glu	Gly	Ala	Leu	Thr	Ala	Lys	Gln	Leu	Ile	Gln	Arg	Ile	Glu
						130		135				140			
Asp	Ser	Leu	Lys	Val	Lys	Pro									
						145		150							

<210> 169

<211> 236
<212> PRT
<213> Arabidopsis thaliana

<400> 169
Met Ala Gly Val Val Arg Leu Thr Thr Ser Val Gln Ala Ile Arg
1 5 10 15
Val Ser Ser Ser Phe Ser Ser Phe Ala Thr Ala Leu Asn Pro Leu Gln
20 25 30
Pro Cys Leu Pro Pro Asn Ser Asn Leu Asn Ser Asp Lys Arg Leu Arg
35 40 45
Leu Leu Ser Ser Ser Pro Ser Cys Ser Ser His Tyr His Pro Ser
50 55 60
Ser Gly Leu Gly Ser His Leu Pro Leu Arg Arg Pro Lys Ser Gln Val
65 70 75 80
Val Arg Val Lys Val Asp Glu Asn Val Ala Glu Thr Glu Pro Pro Lys
85 90 95
Trp Trp Glu Arg Asn Ala Pro Asn Met Val Asp Ile His Ser Thr Glu
100 105 110
Glu Phe Leu Ser Ala Leu Ser Gly Ala Gly Glu Arg Leu Val Ile Val
115 120 125
Glu Phe Tyr Gly Thr Trp Cys Ala Ser Cys Arg Ala Leu Phe Pro Lys
130 135 140
Leu Cys Lys Thr Ala Val Glu His Pro Asp Ile Val Phe Leu Lys Val
145 150 155 160
Asn Phe Asp Glu Asn Lys Pro Met Cys Lys Ser Leu Asn Val Arg Val
165 170 175
Leu Pro Phe Phe His Phe Tyr Arg Gly Ala Asp Gly Gln Leu Glu Ser
180 185 190
Phe Ser Cys Ser Leu Ala Lys Val Lys Lys Ala Ile Ser Val Ser Pro
195 200 205
Phe Pro Gln Leu Glu Leu Gly Ile Thr Leu Gln Thr Lys Arg Thr Thr
210 215 220
Ser Leu Phe Phe Asp Arg Ile Tyr Gln Ile Leu
225 230 235

<210> 170
<211> 131
<212> PRT
<213> Hordeum bulbosum

<400> 170
Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
20 25 30
Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
35 40 45
Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
50 55 60
Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
65 70 75 80
Asp Val Asp Asp Leu Met Asp Phe Gly Ser Thr Trp Asp Ile Arg Ala
85 90 95
Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
100 105 110
Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
115 120 125
Asp Gly Ser
130

<210> 171
<211> 131
<212> PRT
<213> Lolium perenne

<400> 171
Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
20 25 30
Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
35 40 45
Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
50 55 60
Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
65 70 75 80
Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
85 90 95
Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Leu Ile Asp Lys Leu
100 105 110
Val Gly Ala Asn Arg Pro Glu Leu Glu Lys Lys Val Gln Ala Ile Gly
115 120 125
Asp Gly Ser
130

<210> 172
<211> 131
<212> PRT
<213> Oryza sativa

<400> 172
Met Gly Ser Cys Val Gly Lys Glu Arg Ser Asp Glu Glu Asp Lys Ile
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Ser Asn Lys Glu Asn Trp
20 25 30
Asp His Lys Ile Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Ile Ala
35 40 45
Asn Phe Ser Ala Ala Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
50 55 60
Tyr Ala Glu Met Ser Gln Thr Tyr Pro Gln Phe Met Phe Leu Thr Ile
65 70 75 80
Asp Val Asp Glu Leu Met Asp Phe Ser Ser Ser Trp Asp Ile Arg Ala
85 90 95
Thr Pro Thr Phe Phe Leu Lys Asn Gly Glu Gln Val Asp Lys Leu
100 105 110
Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Ala Ala Leu Ala
115 120 125
Asp Ser Ala
130

<210> 173
<211> 296
<212> PRT
<213> Solanum tuberosum

<400> 173
Met Ala Thr Leu Thr Asn Phe Leu Leu Lys Pro Ser Pro Asn Leu Ala
1 5 10 15
Ser Ile Thr Lys Ile Ser Pro Ser Leu Tyr Ser Asn Phe Pro Phe Glu
20 25 30
Lys Ser Lys Gln Ser Ile Phe Lys Asn Leu Lys Thr Asn Lys Pro Leu
35 40 45
Leu Ile Thr Lys Ala Thr Ala Ala Pro Asp Val Glu Lys Lys Val Ala
50 55 60
Lys Ser Glu Arg Val Gln Lys Val Asn Ser Met Glu Glu Leu Asp Glu
65 70 75 80
Ala Leu Lys Lys Ala Lys Asn Arg Leu Val Val Val Glu Phe Ala Gly
85 90 95
Lys Asp Ser Glu Arg Ser Lys Asn Ile Tyr Pro Phe Met Val Asn Leu
100 105 110

Ser Lys Thr Cys Asn Asp Val Asp Phe Leu Leu Val Ile Gly Asp Glu
 115 120 125
 Thr Glu Lys Thr Lys Ala Leu Cys Arg Arg Glu Lys Ile Asp Lys Val
 130 135 140
 Pro His Phe Asn Phe Tyr Lys Ser Met Glu Lys Ile His Glu Glu Glu
 145 150 155 160
 Gly Ile Gly Pro Asp Leu Leu Ala Gly Asp Val Leu Tyr Tyr Gly Asp
 165 170 175
 Ser His Ser Glu Val Val Gln Leu His Ser Arg Glu Asp Val Glu Lys
 180 185 190
 Val Ile Gln Asp His Lys Ile Asp Lys Lys Leu Ile Val Leu Asp Val
 195 200 205
 Gly Leu Lys His Cys Gly Pro Cys Val Lys Val Tyr Pro Thr Val Ile
 210 215 220
 Lys Leu Ser Lys Gln Met Ala Asp Thr Val Val Phe Ala Arg Met Asn
 225 230 235 240
 Gly Asp Glu Asn Asp Ser Cys Met Gln Phe Leu Lys Asp Met Asp Val
 245 250 255
 Ile Glu Val Pro Thr Phe Leu Phe Ile Arg Asp Gly Glu Ile Cys Gly
 260 265 270
 Arg Tyr Val Gly Ser Gly Lys Gly Glu Leu Ile Gly Glu Ile Leu Arg
 275 280 285
 Tyr Gln Gly Val Arg Val Thr Tyr
 290 295

<210> 174
 <211> 131
 <212> PRT
 <213> Secale cereale

<400> 174
 Met Gly Gly Cys Val Gly Lys Gly Arg Ser Ile Val Glu Glu Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Ile Glu Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Val Ala Pro Val
 50 55 60
 Tyr Ala Gly Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
 115 120 125
 Asp Gly Ser
 130

<210> 175
 <211> 119
 <212> PRT
 <213> Secale cereale

<400> 175
 Met Gly Gly Cys Val Gly Lys Gly Arg Ser Ile Val Glu Glu Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Ile Glu Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile

65	70	75	80
Asp Val Asp Asp Leu Met Asp Phe Ser Ser	Thr Trp Asp Ile Arg Ala		
85	90	95	
Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu			
100	105	110	
Val Gly Ala Asn Lys Pro Glu			
115			

<210> 176
<211> 106
<212> PRT
<213> Manduca sexta

<400> 176	Met Ser Ile His Ile Lys Asp Ala Asp Asp Leu Lys Asn Arg Leu Ala	15	
1	5	10	
Glu Ala Gly Asp Lys Leu Val Val Ile Asp Phe Met Ala Thr Trp Cys			
20	25	30	
Gly Pro Cys Lys Met Ile Gly Pro Lys Leu Asp Glu Met Ala Ala Glu			
35	40	45	
Met Ala Asp Ser Ile Val Val Lys Val Asp Val Asp Glu Cys Glu			
50	55	60	
Asp Ile Ala Ala Asp Tyr Asn Ile Asn Ser Met Pro Thr Phe Val Phe			
65	70	75	80
Val Lys Asn Ser Lys Leu Glu Glu Phe Ser Gly Ala Asn Val Asp			
85	90	95	
Lys Leu Lys Asn Thr Ile Leu Lys Leu Lys			
100	105		

<210> 177
<211> 221
<212> PRT
<213> Bradyrhizobium japonicum

<400> 177	Met Leu Asp Thr Lys Pro Ser Ala Thr Arg Arg Ile Pro Leu Val Ile	15	
1	5	10	
Ala Thr Val Ala Val Gly Gly Leu Ala Gly Phe Ala Ala Leu Tyr Gly			
20	25	30	
Leu Gly Leu Ser Arg Ala Pro Thr Gly Asp Pro Ala Cys Arg Ala Ala			
35	40	45	
Val Ala Thr Ala Gln Lys Ile Ala Pro Leu Ala His Gly Glu Val Ala			
50	55	60	
Ala Leu Thr Met Ala Ser Ala Pro Leu Lys Leu Pro Asp Leu Ala Phe			
65	70	75	80
Glu Asp Ala Asp Gly Lys Pro Lys Lys Leu Ser Asp Phe Arg Gly Lys			
85	90	95	
Thr Leu Leu Val Asn Leu Trp Ala Thr Trp Cys Val Pro Cys Arg Lys			
100	105	110	
Glu Met Pro Ala Leu Asp Glu Leu Gln Gly Lys Leu Ser Gly Pro Asn			
115	120	125	
Phe Glu Val Val Ala Ile Asn Ile Asp Thr Arg Asp Pro Glu Lys Pro			
130	135	140	
Lys Thr Phe Leu Lys Glu Ala Asn Leu Thr Arg Leu Gly Tyr Phe Asn			
145	150	155	160
Asp Gln Lys Ala Lys Val Phe Gln Asp Leu Lys Ala Ile Gly Arg Ala			
165	170	175	
Leu Gly Met Pro Thr Ser Val Leu Val Asp Pro Gln Gly Cys Glu Ile			
180	185	190	
Ala Thr Ile Ala Gly Pro Ala Glu Trp Ala Ser Glu Asp Ala Leu Lys			
195	200	205	
Leu Ile Arg Ala Ala Thr Gly Lys Ala Ala Ala Ala Leu			
210	215	220	

<210> 178
<211> 167
<212> PRT
<213> Haemophilus influenzae

<400> 178
Met Lys Ile Lys Lys Leu Leu Lys Asn Gly Leu Ser Leu Phe Leu Thr
1 5 10 15
Phe Ile Val Ile Thr Ser Ile Leu Asp Phe Val Arg Arg Pro Val Val
20 25 30
Pro Glu Glu Ile Asn Lys Ile Thr Leu Gln Asp Leu Gln Gly Asn Thr
35 40 45
Phe Ser Leu Glu Ser Leu Asp Gln Asn Lys Pro Thr Leu Leu Tyr Phe
50 55 60
Trp Gly Thr Trp Cys Gly Tyr Cys Arg Tyr Thr Ser Pro Ala Ile Asn
65 70 75 80
Ser Leu Ala Lys Glu Gly Tyr Gln Val Val Ser Val Ala Leu Arg Ser
85 90 95
Gly Asn Glu Ala Asp Val Asn Asp Tyr Leu Ser Lys Asn Asp Tyr His
100 105 110
Phe Thr Thr Val Asn Asp Pro Lys Gly Glu Phe Ala Glu Arg Trp Gln
115 120 125
Ile Asn Val Thr Pro Thr Ile Val Leu Leu Ser Lys Gly Lys Met Asp
130 135 140
Leu Val Thr Thr Gly Leu Thr Ser Tyr Trp Gly Leu Lys Val Arg Leu
145 150 155 160
Phe Phe Ala Glu Phe Phe Gly
165

<210> 179
<211> 163
<212> PRT
<213> Leishmania major

<400> 179
Met Leu Lys Val Ser Ser Lys Glu His Tyr Ala Glu Ile Lys Lys Lys
1 5 10 15
Ala Glu Asp Ser Leu Gly Leu Val Val His Phe Ser Ala Thr Trp Cys
20 25 30
Glu Pro Cys Thr Ala Val Asn Glu His Leu Thr Lys Gln Ala Ala Glu
35 40 45
Tyr Gly Asp Asn Val Val Phe Ala Glu Val Asp Cys Gly Glu Leu Gly
50 55 60
Asp Val Cys Glu Ala Glu Gly Val Glu Ser Val Pro Phe Val Ala Tyr
65 70 75 80
Phe Arg Thr Pro Leu Val Gly Asp Asp Arg Arg Val Glu Arg Val Ala
85 90 95
Asp Val Ala Gly Ala Lys Phe Asp Gln Ile Asp Met Asn Thr His Ser
100 105 110
Leu Phe Gly Glu Lys Gly Gly Asn Arg Gly Ser Ala Glu Gly Leu Cys
115 120 125
His Ser Gly Arg Leu Pro Ala Leu Pro His Glu Ala Ala Arg Gly Arg
130 135 140
Asn Val His His Arg His Pro Ile Ser Ser Ala Leu Arg Leu Tyr Trp
145 150 155 160
Ser Ala Val

<210> 180
<211> 275
<212> PRT
<213> Mortierella alpina

<400> 180
Met Val Ser Asn Asn Tyr Ile Asp Ile Thr Ser Glu Asp Asp Phe Ala

1	5	10	15
Gln Val Phe Gln Pro Ser Ser Ser	Thr Val Tyr Ala Leu Asn Phe Trp		
20	25	30	
Ala Ala Trp Ala Pro Pro Cys Val	Gln Met Asn Glu Val Phe Glu Glu		
35	40	45	
Leu Ala Ala Lys Asn Ala Asn Val Asn Phe Leu Lys Ile Glu Ala Glu			
50	55	60	
Lys Phe Pro Asp Ile Ser Glu Asp Tyr Glu Ile Ala Ala Val Pro Ser			
65	70	75	80
Phe Val Ile Val Lys Glu Gly Thr Val Val Asp Arg Val Glu Gly Ala			
85	90	95	
Asn Ala Pro Glu Leu Ala Lys Val Ile Ala Lys Tyr Ser Lys Ser Thr			
100	105	110	
Ser Ser Pro Leu Pro Thr Gln Ser Ser Thr Met Ala Ala Ala Gly His			
115	120	125	
Ala Ala Pro Ser Val Ala Pro Pro Thr Met Ser Pro Glu Glu Met Asn			
130	135	140	
Ala Arg Leu Lys Glu Leu Thr Ser Ser Ser Val Met Ala Phe Ile			
145	150	155	160
Lys Gly Thr Pro Thr Ala Pro Arg Cys Gln Phe Ser Arg Gln Leu Leu			
165	170	175	
Glu Ile Leu Thr Ala Gln Asn Ile Arg Phe Ser Ser Phe Asn Ile Leu			
180	185	190	
Ala Asp Asp Glu Val Arg Gln Ala Met Lys Thr Phe Ser Asp Trp Pro			
195	200	205	
Thr Phe Pro Gln Val Tyr Val Lys Glu Phe Val Gly Gly Leu Asp			
210	215	220	
Val Val Lys Glu Leu Val Ala Ser Gly Glu Phe Gln Ala Leu Val Pro			
225	230	235	240
Ala Glu Lys Asp Leu Lys Thr Arg Met Asp Glu Leu Ile Arg Lys Ala			
245	250	255	
Pro Val Met Ile Phe Ile Lys Gly Ser Pro Glu Thr Pro Arg Cys Gly			
260	265	270	
Phe Ser Lys			
275			

<210> 181
<211> 160
<212> PRT
<213> Neisseria gonorrhoeae

<400> 181			
Met Lys Arg Leu Ile Leu Ala Ala Ile Ala Leu Ala Ala Thr Phe Gly			
1	5	10	15
Ala His Thr Ala Ser Gly Asp Glu Leu Ala Gly Trp Lys Asp Asn Thr			
20	25	30	
Pro Gln Asn Leu Gln Ser Leu Lys Ala Pro Val Arg Ile Ala Asn Leu			
35	40	45	
Trp Ala Thr Trp Cys Gly Pro Cys Arg Lys Glu Met Pro Ala Met Ser			
50	55	60	
Lys Trp Tyr Lys Ala Gln Lys Lys Gly Ser Val Asp Met Val Gly Ile			
65	70	75	80
Ala Leu Asp Thr Ser Asp Asn Ile Gly Asn Phe Leu Lys Gln Thr Pro			
85	90	95	
Val Ser Tyr Pro Ile Trp Arg Tyr Thr Gly Ala Asn Ser Arg Ser Phe			
100	105	110	
Met Lys Ser Tyr Gly Asn Asn Val Gly Val Leu Pro Phe Thr Val Val			
115	120	125	
Glu Ala Pro Lys Cys Gly Tyr Arg Gln Thr Ile Thr Gly Glu Leu Asn			
130	135	140	
Glu Lys Ser Leu Thr Glu Ala Val Lys Leu Ala His Ser Lys Cys Arg			
145	150	155	160

<210> 182
<211> 208

<212> PRT
<213> Rhizobium loti

<400> 182
Met Ala Gly Ala Leu Ala Gly Ala Val Ala Val Tyr Val Ser Glu Ser
1 5 10 15
Arg Ser Gly Asn Asn Ala Pro Ala Arg Val Ala Val Gly Gly Ser Lys
20 25 30
Asp Asp Val Ala Cys Ala Ala Lys Ser Gly Arg Ala Lys Lys Ile Ala
35 40 45
Ala Ala Ala Thr Gly Glu Val Ala Ala Leu Leu Pro Ala Asp Pro Pro
50 55 60
Gln Ser Met Lys Ser Leu Ala Phe Asn Gly Pro Asp Gly Lys Pro Met
65 70 75 80
Thr Ile Ala Asp His Ala Gly Lys Thr Val Leu Leu Asn Leu Trp Ala
85 90 95
Thr Trp Cys Ala Pro Cys Arg Ala Glu Met Pro Ala Leu Asn Ala Leu
100 105 110
Gln Lys Asp Lys Gly Ser Asp Ala Phe Gln Val Ile Ala Val Asn Val
115 120 125
Asp Ala Gly Asp Asp Val Lys Pro Lys Lys Phe Leu Lys Glu Thr Gly
130 135 140
Val Glu Ala Leu Gly Tyr Phe Arg Asp Ser Thr Val Ala Leu Phe Asn
145 150 155 160
Asp Leu Lys Ala Arg Gly Leu Ala Leu Gly Leu Pro Val Thr Met Leu
165 170 175
Ile Asp Ser Glu Gly Cys Leu Ile Ala His Met Asn Gly Pro Ala Glu
180 185 190
Trp Ser Gly Arg Asp Ala Arg Arg Leu Val Glu Thr Ala Leu Gly Ser
195 200 205

<210> 183
<211> 176
<212> PRT
<213> Rhodobacter capsulatus

<400> 183
Met Ala Lys Pro Leu Met Phe Leu Pro Leu Leu Val Met Ala Gly Phe
1 5 10 15
Val Gly Ala Gly Tyr Phe Ala Met Gln Gln Asn Asp Pro Asn Ala Met
20 25 30
Pro Thr Ala Leu Ala Gly Lys Glu Ala Pro Ala Val Arg Leu Glu Pro
35 40 45
Leu Gly Ala Glu Ala Pro Phe Thr Asp Ala Asp Leu Arg Asp Gly Lys
50 55 60
Ile Lys Leu Val Asn Phe Trp Ala Ser Trp Cys Ala Pro Cys Arg Val
65 70 75 80
Glu His Pro Asn Leu Ile Gly Leu Lys Gln Asp Gly Ile Glu Ile Met
85 90 95
Gly Val Asn Trp Lys Asp Thr Pro Asp Gln Ala Gln Gly Phe Leu Ala
100 105 110
Glu Met Gly Ser Pro Tyr Thr Arg Leu Gly Ala Asp Pro Gly Asn Lys
115 120 125
Met Gly Leu Asp Trp Gly Val Ala Gly Val Pro Glu Thr Phe Val Val
130 135 140
Asp Gly Ala Gly Arg Ile Leu Thr Arg Ile Ala Gly Pro Leu Thr Glu
145 150 155 160
Asp Val Ile Thr Lys Lys Ile Asp Pro Leu Leu Ala Gly Thr Ala Asp
165 170 175

<210> 184
<211> 105
<212> PRT
<213> Synechocystis

<400> 184
Met Ala Val Lys Lys Gln Phe Ala Asn Phe Ala Glu Met Leu Ala Gly
1 5 10 15
Ser Pro Lys Pro Val Leu Val Asp Phe Tyr Ala Thr Trp Cys Gly Pro
20 25 30
Cys Gln Met Met Ala Pro Ile Leu Glu Gln Val Gly Ser His Leu Arg
35 40 45
Gln Gln Ile Gln Val Val Lys Ile Asp Thr Asp Lys Tyr Pro Ala Ile
50 55 60
Ala Thr Gln Tyr Gln Ile Gln Ser Leu Pro Thr Leu Val Leu Phe Lys
65 70 75 80
Gln Gly Gln Pro Val His Arg Met Glu Gly Val Gln Gln Ala Ala Gln
85 90 95
Leu Ile Gln Gln Leu Gln Val Phe Val
100 105

<210> 185
<211> 109
<212> PRT
<213> Synechocystis

<400> 185
Met Ser Leu Leu Glu Ile Thr Asp Ala Glu Phe Glu Gln Glu Thr Gln
1 5 10 15
Gly Gln Thr Lys Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys Gly
20 25 30
Pro Cys Arg Leu Met Ala Pro Ala Ile Gln Ala Ile Ala Lys Asp Tyr
35 40 45
Gly Asp Lys Leu Lys Val Leu Lys Leu Glu Val Asp Pro Asn Pro Ala
50 55 60
Ala Val Ala Gln Cys Lys Val Glu Gly Val Pro Ala Leu Arg Leu Phe
65 70 75 80
Lys Asn Asn Glu Leu Val Met Thr His Glu Gly Ala Ile Ala Lys Pro
85 90 95
Lys Leu Leu Glu Leu Leu Lys Glu Glu Leu Asp Phe Ile
100 105

<210> 186
<211> 290
<212> PRT
<213> Schizosaccharomyces pombe

<400> 186
Met Ser Val Ile Glu Ile Arg Ser Tyr Gln His Trp Ile Ser Thr Ile
1 5 10 15
Pro Lys Ser Gly Tyr Leu Ala Val Asp Cys Tyr Ala Asp Trp Cys Gly
20 25 30
Pro Cys Lys Ala Ile Ser Pro Leu Phe Ser Gln Leu Ala Ser Lys Tyr
35 40 45
Ala Ser Pro Lys Phe Val Phe Ala Lys Val Asn Val Asp Glu Gln Arg
50 55 60
Gln Ile Ala Ser Gly Leu Gly Val Lys Ala Met Pro Thr Phe Val Phe
65 70 75 80
Phe Glu Asn Gly Lys Gln Ile Asp Met Leu Thr Gly Ala Asn Pro Gln
85 90 95
Ala Leu Lys Glu Lys Val Ala Leu Ile Ser Ser Lys Ala Thr Gly Thr
100 105 110
Gly Ala Leu Ala Ser Ser Ser Ala Pro Val Lys Gly Phe Ala Ser
115 120 125
Leu Gln Gly Cys Ile Glu Asn Pro Gln Leu Glu Cys Leu Asn Gln Gln
130 135 140
Asp Asp His Asp Leu Lys Ser Ala Phe Asn Ser Asn Pro Ser Ser Phe
145 150 155 160
Leu Glu Ser Asp Val Asp Glu Gln Leu Met Ile Tyr Ile Pro Phe Leu
165 170 175

Glu Val Val Lys Val His Ser Ile Ala Ile Thr Pro Val Lys Gly Glu
 180 185 190
 Thr Ser Ser Ala Pro Lys Thr Ile Lys Leu Tyr Ile Asn Gln Pro Asn
 195 200 205
 Asn Leu Ser Phe Glu Asp Ala Glu Ser Phe Thr Pro Thr Gln Val Ile
 210 215 220
 Glu Asp Ile Val Tyr Glu Gln Asp Asp Gln Pro Thr Ile Ile Pro Leu
 225 230 235 240
 Arg Phe Val Lys Phe Gln Arg Val Asn Ser Leu Val Ile Phe Ile Tyr
 245 250 255
 Ser Asn Val Gly Glu Glu Glu Thr Thr Lys Ile Ser Arg Leu Glu Leu
 260 265 270
 Phe Gly Glu Pro Val Gly Asp Ser Ser Lys Gly Lys Leu Gln Lys Val
 275 280 285
 Glu Ala
 290

<210> 187
 <211> 185
 <212> PRT
 <213> Treponema pallidum

<400> 187
 Met Phe Arg Ser Asp Leu Val Leu Ala Val Trp Gly Val Thr Cys Val
 1 5 10 15
 Gln Ala Ala Asp Val Ala His Asn Ala Asp Val Pro Ser Arg Ser Leu
 20 25 30
 Lys Ala Leu Glu Arg Phe Arg Phe Phe Val Tyr Pro Lys Pro Leu Asp
 35 40 45
 Leu Ser Ser Asp Phe His Ala Lys Ala Leu Lys Gly Glu Ala Leu Val
 50 55 60
 Pro Ser Leu Phe Lys Gly Lys Val Thr Leu Leu Asn Phe Trp Ala Thr
 65 70 75 80
 Trp Cys Pro Pro Cys Arg Ala Glu Met Pro Ser Met Asp Arg Met Gln
 85 90 95
 Ala Leu Met Arg Gly Asn Asp Phe Gln Ile Val Ala Val Asn Val Gly
 100 105 110
 Asp Ser Arg Lys Gln Val Glu Ser Phe Ile Ala Arg Gly Lys His Thr
 115 120 125
 Phe Pro Ile Tyr Leu Asp Glu Glu Gly Ser Leu Gly Ser Val Phe Ala
 130 135 140
 Ser Arg Gly Leu Pro Thr Thr Tyr Val Val Asp Lys Ala Gly Arg Ile
 145 150 155 160
 Val Ala Val Val Val Gly Ser Val Glu Tyr Asp Gln Pro Glu Leu Val
 165 170 175
 Ala Leu Phe Lys Glu Leu Ala Arg Asp
 180 185

<210> 188
 <211> 246
 <212> PRT
 <213> Caenorhabditis elegans

<400> 188
 Met Leu Leu Arg Leu Leu Ala Val Leu Gly Leu Phe Ala Val Gly Val
 1 5 10 15
 Ser Gly Gly Pro Thr Arg Ser Ser Lys Leu Val Phe Leu Asn Glu Glu
 20 25 30
 Asn Trp Thr Asp Leu Met Lys Gly Glu Trp Met Ile Glu Phe His Ala
 35 40 45
 Pro Trp Cys Pro Ala Cys Lys Asp Leu Gln Lys Ala Trp Asn Ala Phe
 50 55 60
 Ala Asp Trp Ser Asp Asp Leu Gly Ile Lys Val Gly Glu Val Asp Val
 65 70 75 80
 Thr Val Asn Pro Gly Leu Ser Gly Arg Phe Leu Val Thr Ala Leu Pro

85	90	95
Thr Ile Tyr His Val Lys Asp Gly Val Phe Arg Gln Tyr Ser Gly Ala		
100	105	110
Arg Asp Lys Asn Asp Phe Ile Ser Phe Val Glu Asp Lys Lys Tyr Arg		
115	120	125
Val Ile Asp Pro Val Pro Asp Tyr Lys His Pro Asn Ser Lys Gln Met		
130	135	140
Ala Val Val Ala Val Phe Phe Lys Leu Ser Met Ser Val Arg Asp Leu		
145	150	155
His Asn His Leu Val Glu Asp Lys Gly Ile Pro Ser Trp Ala Ser Tyr		
165	170	175
Gly Leu Phe Ala Gly Val Thr Leu Ala Leu Gly Cys Val Leu Gly Phe		
180	185	190
Phe Ile Val Ile Ile Asp Gln Val Phe Pro Thr Gly Pro Arg Lys		
195	200	205
Ser Gln Gln Ala Lys Lys Thr Glu Lys Lys Asp Ala Lys Lys Asp Ser		
210	215	220
Gly Thr Glu Ser Pro Thr Lys Lys Asn Gly Asn Asn Asn Gly Lys		
225	230	235
Glu Thr Lys Lys Thr Lys		
245		

<210> 189

<211> 284

<212> PRT

<213> Caenorhabditis elegans

<400> 189

Met Pro Val Ile Asn Val Lys Asp Asp Glu Asp Phe Arg Asn Gln Leu		
1	5	10
Ser Leu Ala Gly Leu Lys Ser Val Ile Val Asp Phe Thr Ala Val Trp		
20	25	30
Cys Gly Pro Cys Lys Met Ile Ala Pro Thr Phe Glu Ala Leu Ser Asn		
35	40	45
Gln Tyr Leu Gly Ala Val Phe Leu Lys Val Asp Val Glu Ile Cys Glu		
50	55	60
Lys Thr Ser Ser Glu Asn Gly Val Asn Ser Met Pro Thr Phe Met Val		
65	70	75
Phe Gln Ser Gly Val Arg Val Glu Gln Met Lys Gly Ala Asp Ala Lys		
85	90	95
Ala Leu Glu Thr Met Val Lys Lys Tyr Ala Asp Asn Ser Ala Ala Asp		
100	105	110
Ser Leu Val Ala Gly Gln Met Asp Leu Thr Pro Leu Val Asp Lys Lys		
115	120	125
Gln Met Glu Cys Leu Asn Glu Ser Asp Asp Thr Pro Leu Gly Arg Phe		
130	135	140
Leu Glu Gly Asn Cys Asn Leu Val Ser Asp Cys Asp Glu Gln Leu Ile		
145	150	155
Ile Ser Leu Pro Phe Asn Gln Pro Val Lys Val His Ser Ile Leu Ile		
165	170	175
Lys Gly Val Ser Asp Arg Ala Pro Lys Lys Val Lys Val Phe Ile Asn		
180	185	190
Leu Pro Lys Thr Thr Asp Phe Asp Asn Ala Thr Ala Leu Glu Pro Thr		
195	200	205
Gln Met Leu Glu Phe Asp Glu Ser Ser Ile Gln Gly His Gly Gln Val		
210	215	220
Val Ala Leu Lys Tyr Val Lys Phe Gln Asn Val Gln Asn Ile Gln Phe		
225	230	235
Phe Ile Glu Asn Asn Val Gly Gly Asp Val Thr Glu Leu Val Lys		
245	250	255
Leu Thr Val Phe Gly Thr Pro Leu Ser Ala Leu Asn Met Asn Glu Phe		
260	265	270
Lys Arg Val Ala Gly Lys Ala Gly Asp Ala Ala His		
275	280	

<210> 190
<211> 287
<212> PRT
<213> Drosophila melanogaster

<400> 190
Met Ser Val Arg Val Ile Asn Asp Glu Ser His Phe Gln Ala Glu Leu
1 5 10 15
Ala Gln Ala Gly Ile Gln Leu Val Val Val Asp Phe Thr Ala Ser Trp
20 25 30
Cys Gly Pro Cys Lys Arg Ile Ala Pro Ile Phe Glu Thr Phe Pro Thr
35 40 45
Lys Tyr Pro Lys Ala Ile Phe Leu Lys Val Asp Val Asp Lys Cys Gln
50 55 60
Asp Thr Ala Ala Gly Gln Gly Val Ser Ala Met Pro Thr Phe Ile Phe
65 70 75 80
Tyr Arg Asn Arg Thr Lys Ile Asp Arg Val Gln Gly Ala Asp Val Asn
85 90 95
Gly Leu Glu Ala Lys Ile Gln Glu His Ile Gly Thr Ser Gly Gly Glu
100 105 110
Glu Gly Glu Asp Tyr Gly Gln Gly Leu Met Glu Leu Asn Thr Phe
115 120 125
Ile Ser Lys Gln Glu Cys Glu Cys Leu Asn Glu Ala Asp Asp His Asn
130 135 140
Leu Lys His Ala Leu Ala Ser Ala Gly Gly Tyr Leu Gln Ser Asp Cys
145 150 155 160
Asp Glu Gln Leu Ile Leu Ser Ile Thr Phe Asn Gln Ala Val Lys Ile
165 170 175
His Ser Leu Lys Phe Lys Ala Pro Ser His Leu Gly Pro Lys Asp Val
180 185 190
Lys Leu Phe Ile Asn Gln Pro Arg Thr Ile Asp Phe Asp Met Ala Glu
195 200 205
Ser Met Asn Ser Val Gln Asp Leu Ser Leu Ala Gln Lys Glu Leu Glu
210 215 220
Ser Gly Val Pro Val Asn Leu Arg Tyr Val Lys Phe Gln Asn Val Gln
225 230 235 240
Asn Ile Gln Ile Phe Val Lys Asn Asn Gln Ser Gly Gly Asp Val Thr
245 250 255
Gln Ile Asp Tyr Ile Gly Phe Ile Gly Ser Pro Ile Met Thr Thr Lys
260 265 270
Met Asn Asp Phe Lys Arg Val Ala Gly Lys Lys Gly Glu Ser His
275 280 285

<210> 191
<211> 289
<212> PRT
<213> Homo sapien

<400> 191
Met Val Gly Val Lys Pro Val Gly Ser Asp Pro Asp Phe Gln Pro Glu
1 5 10 15
Leu Ser Gly Ala Gly Ser Arg Leu Ala Val Val Lys Phe Thr Met Arg
20 25 30
Gly Cys Gly Pro Cys Leu Arg Ile Ala Pro Ala Phe Ser Ser Met Ser
35 40 45
Asn Lys Tyr Pro Gln Ala Val Phe Leu Glu Val Asp Val His Gln Cys
50 55 60
Gln Gly Thr Ala Ala Thr Asn Asn Ile Ser Ala Thr Pro Thr Phe Leu
65 70 75 80
Phe Phe Arg Asn Lys Val Arg Ile Asp Gln Tyr Gln Gly Ala Asp Ala
85 90 95
Val Gly Leu Glu Glu Lys Ile Lys Gln His Leu Glu Asn Asp Pro Gly
100 105 110
Ser Asn Glu Asp Thr Asp Ile Pro Lys Gly Tyr Met Asp Leu Met Pro
115 120 125
Phe Ile Asn Lys Ala Gly Cys Glu Cys Leu Asn Glu Ser Asp Glu His

130 Gly Phe Asp Asn Cys Leu Arg Lys Asp Thr	135 150 Cys Asp Glu Gln Leu Leu Ile Thr Val Ala Phe Asn Gln Pro Val Lys	140 155 160 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285
Leu Tyr Ser Met Lys Phe Gln Gly Pro Asp Asn Gly Gln Gly Pro Lys		
Tyr Val Lys Ile Phe Ile Asn Leu Pro Arg Ser Met Asp Phe Glu Glu		
Ala Glu Arg Ser Glu Pro Thr Gln Ala Leu Glu Leu Thr Glu Asp Asp		
Ile Lys Glu Asp Gly Ile Val Pro Leu Arg Tyr Val Lys Phe Gln Asn		
Val Asn Ser Val Thr Ile Phe Val Gln Ser Asn Gln Gly Glu Glu		
Thr Thr Arg Ile Ser Tyr Phe Thr Phe Ile Gly Thr Pro Val Gln Ala		
Thr Asn Met Asn Asp Phe Lys Arg Val Val Gly Lys Lys Gly Glu Ser		

His

<210> 192
<211> 335
<212> PRT
<213> Homo sapien

<400> 192 Met Glu Ala Gly Ala Ala Glu Ala Ala Val Ala Ala Val Glu Glu Val	1 5 10 15 Gly Ser Ala Gly Gln Phe Glu Glu Leu Leu Arg Leu Lys Ala Lys Ser	20 25 30 Leu Leu Val Val His Phe Trp Ala Pro Trp Ala Pro Gln Cys Ala Gln
35 40 45 Met Asn Glu Val Met Ala Glu Leu Ala Lys Glu Leu Pro Gln Val Ser		
50 55 60 Phe Val Lys Leu Glu Ala Glu Gly Val Pro Glu Val Ser Glu Lys Tyr		
65 70 75 80 Glu Ile Ser Ser Val Pro Thr Phe Leu Phe Lys Asn Ser Gln Lys		
85 90 95 Ile Asp Arg Leu Asp Gly Ala His Ala Pro Glu Leu Thr Lys Lys Val		
100 105 110 Gln Arg His Ala Ser Ser Gly Ser Phe Leu Pro Ser Ala Asn Glu His		
115 120 125 Leu Lys Glu Asp Leu Asn Leu Arg Leu Lys Lys Leu Thr His Ala Ala		
130 135 140 Pro Cys Met Leu Phe Met Lys Gly Thr Pro Gln Glu Pro Arg Cys Gly		
145 150 155 160 Phe Ser Lys Gln Met Val Glu Ile Leu His Lys His Asn Ile Gln Phe		
165 170 175 Ser Ser Phe Asp Ile Phe Ser Asp Glu Glu Val Arg Gln Gly Leu Lys		
180 185 190 Ala Tyr Ser Ser Trp Pro Thr Tyr Pro Gln Leu Tyr Val Ser Gly Glu		
195 200 205 Leu Ile Gly Gly Leu Asp Ile Ile Lys Glu Leu Glu Ala Ser Glu Glu		
210 215 220 Leu Asp Thr Ile Cys Pro Lys Ala Pro Lys Leu Glu Glu Arg Leu Lys		
225 230 235 240 Val Leu Thr Asn Lys Ala Ser Val Met Leu Phe Met Lys Gly Asn Lys		
245 250 255 Gln Glu Ala Lys Cys Gly Phe Ser Lys Gln Ile Leu Glu Ile Leu Asn		
260 265 270 Ser Thr Gly Val Glu Tyr Glu Thr Phe Asp Ile Leu Glu Asp Glu Glu		
275 280 285 Val Arg Gln Gly Leu Lys Ala Tyr Ser Asn Trp Pro Thr Tyr Pro Gln		
290 295 300		

Leu Tyr Val Lys Gly Glu Leu Val Gly Gly Leu Asp Ile Val Lys Glu
305 310 315 320
Leu Lys Glu Asn Gly Glu Leu Leu Pro Ile Leu Arg Gly Glu Asn
325 330 335

<210> 193
<211> 131
<212> PRT
<213> Phalaris coerulescens

<400> 193
Met Gly Gly Cys Val Gly Lys Asp Arg Gly Ile Val Glu Asp Lys Leu
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
20 25 30
Asp Gln Lys Ile Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
35 40 45
Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
50 55 60
Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
65 70 75 80
Asp Val Asp Asp Leu Val Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
85 90 95
Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
100 105 110
Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
115 120 125
Asp Gly Ser
130

<210> 194
<211> 144
<212> PRT
<213> Trypanosoma brucei brucei

<400> 194
Met Ser Gly Leu Ala Lys Tyr Leu Pro Gly Ala Thr Asn Leu Leu Ser
1 5 10 15
Lys Ser Gly Glu Val Ser Leu Gly Ser Leu Val Gly Lys Thr Val Phe
20 25 30
Leu Tyr Phe Ser Ala Ser Trp Cys Pro Pro Cys Arg Gly Phe Thr Pro
35 40 45
Val Leu Ala Glu Phe Tyr Glu Lys His His Val Ala Lys Asn Phe Glu
50 55 60
Val Val Leu Ile Ser Trp Asp Glu Asn Glu Ser Asp Phe His Asp Tyr
65 70 75 80
Tyr Gly Lys Met Pro Trp Leu Ala Leu Pro Phe Asp Gln Arg Ser Thr
85 90 95
Val Ser Glu Leu Gly Lys Thr Phe Gly Val Glu Ser Ile Pro Thr Leu
100 105 110
Ile Thr Ile Asn Ala Asp Thr Gly Ala Ile Ile Gly Thr Gln Ala Arg
115 120 125
Thr Arg Val Ile Glu Asp Pro Asp Gly Ala Asn Phe Pro Trp Pro Asn
130 135 140

<210> 195
<211> 333
<212> PRT
<213> Arabidopsis thaliana

<400> 195
Met Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser
1 5 10 15
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu

20	25	30	
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly			
35	40	45	
Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro			
50	55	60	
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser			
65	70	75	80
Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp			
85	90	95	
Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu			
100	105	110	
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser			
115	120	125	
Phe Val Gly Ser Gly Glu Ala Ser Gly Gly Phe Trp Asn Arg Gly Ile			
130	135	140	
Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys			
145	150	155	160
Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Asn			
165	170	175	
Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp			
180	185	190	
Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro			
195	200	205	
Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp			
210	215	220	
Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr			
225	230	235	240
Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly			
245	250	255	
His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser			
260	265	270	
Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro			
275	280	285	
Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala			
290	295	300	
Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His			
305	310	315	320
Tyr Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp			
325	330		

<210> 196

<211> 383

<212> PRT

<213> Arabidopsis thaliana

<400> 196

Met Cys Trp Ile Ser Met Ser Gln Ser Arg Phe Ile Ile Lys Ser Leu			
1	5	10	15
Phe Ser Thr Ala Gly Gly Phe Leu Leu Gly Ser Ala Leu Ser Asn Pro			
20	25	30	
Pro Ser Leu Ala Thr Ala Phe Ser Ser Ser Ser Ser Ser Ala			
35	40	45	
Ala Ala Ala Val Asp Met Glu Thr His Lys Thr Lys Val Cys Ile Val			
50	55	60	
Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ser Arg Ala			
65	70	75	80
Glu Leu Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala			
85	90	95	
Pro Gly Gly Gln Leu Thr Thr Thr Asp Val Glu Asn Phe Pro Gly			
100	105	110	
Phe Pro Glu Gly Ile Leu Gly Ile Asp Ile Val Glu Lys Phe Arg Lys			
115	120	125	
Gln Ser Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Asn Lys			
130	135	140	
Val Asp Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Arg Thr			
145	150	155	160

Val Leu Ala Asp Ser Val Ile Ile Ser Thr Gly Ala Val Ala Lys Arg
 165 170 175
 Leu Ser Phe Thr Gly Ser Gly Glu Gly Asn Gly Gly Phe Trp Asn Arg
 180 185 190
 Gly Ile Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg
 195 200 205
 Asn Lys Pro Leu Val Val Ile Gly Gly Asp Ser Ala Met Glu Glu
 210 215 220
 Ala Asn Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg
 225 230 235 240
 Arg Asp Thr Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser
 245 250 255
 Asn Pro Lys Ile Glu Val Ile Trp Asn Ser Ala Val Val Glu Ala Tyr
 260 265 270
 Gly Asp Glu Asn Gly Arg Val Leu Gly Gly Leu Lys Val Lys Asn Val
 275 280 285
 Val Thr Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala
 290 295 300
 Ile Gly His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gln Leu Glu Leu
 305 310 315 320
 Asp Glu Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Lys Thr Ser
 325 330 335
 Val Val Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg
 340 345 350
 Gln Ala Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala
 355 360 365
 Glu His Tyr Leu Gln Glu Ile Gly Ser Gln Glu Gly Lys Ser Asp
 370 375 380

<210> 197
 <211> 323
 <212> PRT
 <213> Aquifex aeolicus

<400> 197
 Met Ala Val Ser Leu Met Gln Gln Pro Asp Lys Val Tyr Asp Val Ile
 1 5 10 15
 Ile Ile Gly Ala Gly Pro Ala Gly Thr Thr Ala Ala Ile Tyr Thr Ala
 20 25 30
 Arg Ala Gly Trp Lys Thr Leu Val Leu Tyr Arg Ala Glu Ala Asp Gly
 35 40 45
 Ala Leu Gly Val Thr Gln Lys Ile Glu Asn Tyr Pro Gly Val Pro Gly
 50 55 60
 Pro Leu Ser Gly Tyr Glu Leu Leu Lys Ile Met Arg Glu Gln Ala Lys
 65 70 75 80
 Ser Phe Gly Ala Glu Phe Val Arg Gly Lys Val Ile Ala Thr Asp Leu
 85 90 95
 Asn Ser Asp Pro Lys Lys Val Tyr Thr Ile Asp Gly Arg Glu Phe Arg
 100 105 110
 Gly Lys Thr Ile Ile Val Ala Ser Gly Ala Met Glu Arg Ala Asn Lys
 115 120 125
 Phe Lys Gly Glu Glu Glu Phe Leu Gly Arg Gly Val Ser Tyr Cys Gly
 130 135 140
 Val Cys Asp Ala Ala Phe Phe Lys Asp Gln Pro Val Ala Val Ile Gly
 145 150 155 160
 Asp Asp Asp Tyr Ala Ile Glu Glu Ala Glu Phe Ile Ala Arg Phe Ala
 165 170 175
 Asn Lys Val Phe Phe Val Val Pro Gly Ser Lys Ile Lys Ala Pro Pro
 180 185 190
 Glu Val Ile Glu His Phe Glu Lys Leu Pro Asn Val Glu Ile Leu Leu
 195 200 205
 Arg His Arg Pro Ile Glu Ile Val Gly Asp Gln Val Val Lys Gly Ile
 210 215 220
 Lys Leu Lys Asp Leu Glu Lys Lys Glu Glu Lys Leu Leu Glu Val Asn
 225 230 235 240
 Gly Val Phe Ile Phe Leu Gly Gly Thr Lys Pro Ser Val Asp Phe Leu

245	250	255
Met Gly Gln Val Glu Met Thr Glu Gly Asp Cys Ile Val Val Asn Glu		
260	265	270
Glu Met Met Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Leu		
275	280	285
Cys Asn Glu Val Lys Gln Ala Val Val Ala Ala Ala Met Gly Cys Lys		
290	295	300
Ala Ala Leu Ala Val Asp Lys Phe Leu Ser Gly Lys Lys Lys Ile Val		
305	310	315
Pro Gln Trp		320

<210> 198
<211> 315
<212> PRT
<213> *Bacillus subtilis*

<400> 198		
Ser Glu Glu Lys Ile Tyr Asp Val Ile Ile Gly Ala Gly Pro Ala		
1	5	10
Gly Met Thr Ala Ala Val Tyr Thr Ser Arg Ala Asn Leu Ser Thr Leu		
20	25	30
Met Ile Glu Arg Gly Ile Pro Gly Gly Gln Met Ala Asn Thr Glu Asp		
35	40	45
Val Glu Asn Tyr Pro Gly Phe Glu Ser Ile Leu Gly Pro Glu Leu Ser		
50	55	60
Asn Lys Met Phe Glu His Ala Lys Lys Phe Gly Ala Glu Tyr Ala Tyr		
65	70	75
Gly Asp Ile Lys Glu Val Ile Asp Gly Lys Glu Tyr Lys Val Val Lys		
85	90	95
Ala Gly Ser Lys Glu Tyr Lys Ala Arg Ala Val Ile Ile Ala Ala Gly		
100	105	110
Ala Glu Tyr Lys Lys Ile Gly Val Pro Gly Glu Lys Glu Leu Gly Gly		
115	120	125
Arg Gly Val Ser Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe Lys Gly		
130	135	140
Lys Glu Leu Val Val Val Gly Gly Asp Ser Ala Val Glu Glu Gly		
145	150	155
Val Tyr Leu Thr Arg Phe Ala Ser Lys Val Thr Ile Val His Arg Arg		
165	170	175
Asp Lys Leu Arg Ala Gln Ser Ile Leu Gln Ala Arg Ala Phe Asp Asn		
180	185	190
Glu Lys Val Asp Phe Leu Trp Asn Lys Thr Val Lys Glu Ile His Glu		
195	200	205
Glu Asn Gly Lys Val Gly Asn Val Thr Leu Val Asp Thr Val Thr Gly		
210	215	220
Glu Glu Ser Glu Phe Lys Thr Asp Gly Val Phe Ile Tyr Ile Gly Met		
225	230	235
Leu Pro Leu Ser Lys Pro Phe Glu Asn Leu Gly Ile Thr Asn Glu Glu		
245	250	255
Gly Tyr Ile Glu Thr Asn Asp Arg Met Glu Thr Lys Val Glu Gly Ile		
260	265	270
Phe Ala Ala Gly Asp Ile Arg Glu Lys Ser Leu Arg Gln Ile Val Thr		
275	280	285
Ala Thr Gly Asp Gly Ser Ile Ala Ala Gln Ser Val Gln His Tyr Val		
290	295	300
Glu Glu Leu Gln Glu Thr Leu Lys Thr Leu Lys		
305	310	315

<210> 199
<211> 326
<212> PRT
<213> *Borrelia burgdorferi*

<400> 199

Met Leu Glu Phe Glu Thr Ile Asp Ile Asn Leu Thr Lys Lys Lys Asn
 1 5 10 15
 Leu Ser Gln Lys Glu Val Asp Phe Ile Glu Asp Val Ile Ile Val Gly
 20 25 30
 Ser Gly Pro Ala Gly Leu Thr Ala Gly Ile Tyr Ser Val Met Ser Asn
 35 40 45
 Tyr Lys Ala Ala Ile Leu Glu Gly Pro Glu Pro Gly Gly Gln Leu Thr
 50 55 60
 Thr Thr Thr Glu Val Tyr Asn Tyr Pro Gly Phe Lys Asn Gly Ile Ser
 65 70 75 80
 Gly Arg Asn Leu Met Leu Asn Met Arg Glu Gln Val Val Asn Leu Gly
 85 90 95
 Ala Lys Thr Phe Pro Glu Thr Val Phe Ser Ile Lys Arg Lys Gly Asn
 100 105 110
 Ile Phe Tyr Leu Tyr Thr Glu Asn Tyr Ile Tyr Lys Ser Lys Ala Val
 115 120 125
 Ile Ile Ala Val Gly Ser Lys Pro Lys Lys Leu Glu Thr Leu Lys Asn
 130 135 140
 Ser Gly Leu Phe Trp Asn Lys Gly Ile Ser Val Cys Ala Ile Cys Asp
 145 150 155 160
 Gly His Leu Phe Lys Gly Lys Arg Val Ala Val Ile Gly Gly Asn
 165 170 175
 Thr Ala Leu Ser Glu Ser Ile Tyr Leu Ser Lys Leu Val Asp Lys Val
 180 185 190
 Tyr Leu Ile Val Arg Lys Asn Asn Leu Arg Ala Ile Ala Met Leu Arg
 195 200 205
 Asp Ser Val Ala Lys Leu Pro Asn Ile Glu Ile Leu Tyr Asn Ser Glu
 210 215 220
 Ala Ile Glu Val Asp Gly Lys Ser Ser Val Ser Val Lys Ile Phe
 225 230 235 240
 Asn Lys Lys Asp Asn Val Val Tyr Glu Leu Glu Val Ser Ala Val Phe
 245 250 255
 Met Ala Val Gly Tyr Lys Pro Asn Thr Glu Phe Leu Lys Gly Phe Leu
 260 265 270
 Asp Leu Asp Glu Glu Gly Phe Ile Val Thr Lys Asp Val Val Lys Thr
 275 280 285
 Ser Val Asp Gly Val Phe Ser Cys Gly Asp Val Ser Asn Lys Leu Tyr
 290 295 300
 Ala Gln Ala Ile Thr Ala Ala Ala Glu Gly Phe Ile Ala Ser Val Glu
 305 310 315 320
 Leu Gly Asn Phe Leu Lys
 325

<210> 200
 <211> 319
 <212> PRT
 <213> Buchnera aphidicola

<400> 200
 Met Asp Lys Val Lys His Ser Lys Ile Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Asn Leu Asp Pro
 20 25 30
 Phe Leu Ile Thr Gly Thr Asn Lys Gly Gly Gln Leu Met Asn Thr Asn
 35 40 45
 Glu Ile Glu Asn Trp Pro Gly Asp Tyr Asn Lys Ile Ser Gly Ser Glu
 50 55 60
 Leu Met Asn Arg Met Tyr Lys His Ala Ile Glu Leu Lys Thr Lys Val
 65 70 75 80
 Ile Cys Asp Thr Val Ile Ser Val Asn Phe Lys Lys Asn Pro Phe Phe
 85 90 95
 Leu Ile Gly Glu Asn Asn Lys Tyr Thr Ala Asp Ser Val Ile Ile Ala
 100 105 110
 Thr Gly Ala Asn Pro Arg Tyr Leu Gly Leu Gln Ser Glu Ser Leu Phe
 115 120 125
 Lys Gly Lys Gly Val Ser Thr Cys Ala Val Cys Asp Gly Phe Phe Tyr

130 Lys Asn Lys Glu Val Ala Val Val Gly Gly Asn Thr Ala Ile Glu	135 145 150 Glu Thr Leu Tyr Leu Ser Asn Phe Val Lys Lys Val His Leu Ile His	140 155 160 165 170 175 Arg Gly Ile Asn Phe Arg Ala Glu Lys Ile Leu Leu Asp Arg Leu Glu
180 185 Lys Lys Ile Lys Ser Gln Lys Ile Ile Tyr Leu Asn Ser Ile Val	190 195 200 205 Lys Asn Ile Leu Gly Asn Ser Ser Gly Val Thr Ala Leu Leu Ile Glu	220 210 215 220 Gln Lys Asn Ser Lys Glu Lys Thr Glu Ser Lys Ile Gln Val Ser Gly
225 230 Leu Phe Val Ala Ile Gly Tyr Thr Pro Asn Thr Asn Ile Phe Val Asn	240 245 250 255 Lys Leu Lys Met Lys Asp Gly Tyr Ile Gln Val Thr Arg Gln Glu His	270 260 265 270 Gly Asn Tyr Thr Gln Thr Ser Ile Pro Gly Ile Phe Ala Ala Gly Asp
275 280 Val Ile Asp His Val Tyr Arg Gln Ala Ile Thr Ser Ser Ala Ser Gly	285 290 295 300 Cys Met Ala Ala Leu Asp Ser Glu Arg Tyr Ile Asn Ser Leu Val	
305	310	315

<210> 201

<211> 319

<212> PRT

<213> Buchnera aphidicola

<400> 201

Met Glu Leu Lys Asn His Lys Lys Ile Ile Leu Gly Ser Gly Pro	1 5 10 15 Ala Gly Tyr Thr Ala Ala Ile Tyr Ser Ser Arg Ala Asn Leu Asn Pro	20 25 30 Leu Leu Ile Thr Gly Ile Asn Lys Gly Gly Gln Leu Met Asn Thr Asn
35 40 45 Glu Ile Glu Asn Trp Pro Gly Asp Phe Lys Lys Ile Thr Gly Pro Glu	50 55 60 Leu Met Asn Arg Met His Glu His Ser Leu Lys Phe Lys Thr Glu Ile	
65 70 75 80 Val Tyr Asp Asn Ile Ile Ser Val Glu Phe Lys Lys Lys Pro Phe Phe	85 90 95 Leu Leu Gly Glu Tyr Asn Lys Tyr Thr Cys Asp Ala Val Ile Ile Ala	
100 105 110 Thr Gly Ala Asn Pro Arg Tyr Leu Gly Leu Ser Ser Glu Asn Lys Phe	115 120 125 Lys Gly Lys Gly Ile Ser Thr Cys Ala Val Cys Asp Gly Phe Phe Tyr	
130 135 140 Lys Asn Lys Glu Ile Ala Val Val Gly Gly Asn Thr Ala Ile Glu	145 150 155 160 Glu Thr Leu Tyr Leu Ser Asn Phe Val Lys Lys Ile Tyr Leu Ile His	
165 170 175 Arg Arg Asn Asn Phe Lys Ala Glu Lys Ile Leu Ile Asp Arg Leu Leu	180 185 190 Lys Ile Val Lys Thr Lys Lys Val Ile Leu His Leu Asn Ser Thr Ile	
195 200 205 Glu Asp Ile Leu Gly Asn Asn Lys Gly Val Thr His Leu Leu Ile Lys	210 215 220 Asn Lys Asn Leu Lys Glu Lys Lys Leu Lys Ile Ala Val Ser Gly	
225 230 235 240 Leu Phe Val Ala Ile Gly Tyr Ile Pro Asn Thr Asp Ile Phe Thr Asp	245 250 255 Gln Leu Lys Met Lys Asp Gly Tyr Ile Lys Ile Lys Lys Gly Thr His	
260 265 270 Gly Asn Tyr Thr Gln Thr Asn Ile Pro Gly Val Phe Ala Ala Gly Asp	275 280 285	

Val Ile Asp His Val Tyr Arg Gln Ala Ile Thr Ser Ser Ala Ser Gly
290 295 300
Cys Met Ala Ala Leu Asp Ser Glu Arg Tyr Leu Asn Ser Leu Ser
305 310 315

<210> 202
<211> 312
<212> PRT
<213> Chlamydia muridarum

<400> 202
Met Thr His Val Lys Leu Ala Ile Ile Gly Ser Gly Pro Ala Gly Tyr
1 5 10 15
Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu Thr Pro Ile Leu Phe
20 25 30
Glu Gly Phe Phe Ser Gly Ile Ala Gly Gly Gln Leu Met Thr Thr Thr
35 40 45
Glu Val Glu Asn Phe Pro Gly Phe Pro Gln Gly Val Leu Gly His Gln
50 55 60
Leu Met Glu Asn Met Lys Met Gln Ala Gln Arg Phe Gly Thr Gln Val
65 70 75 80
Ile Ala Lys Asp Ile Thr Ser Val Asp Phe Ser Val Arg Pro Phe Val
85 90 95
Leu Lys Ser Gly Glu Asp Thr Phe Thr Cys Asp Ala Cys Ile Ile Ala
100 105 110
Thr Gly Ala Ser Ala Lys Arg Leu Ser Ile Pro Gly Ala Gly Asp Asn
115 120 125
Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala
130 135 140
Ser Pro Ile Phe Arg Asp Arg Asp Leu Phe Val Ile Gly Gly Asp
145 150 155 160
Ser Ala Leu Glu Glu Ala Met Phe Leu Thr Arg Tyr Gly Lys Arg Val
165 170 175
Phe Val Val His Arg Arg Asp Thr Leu Arg Ala Ser Lys Ala Met Val
180 185 190
Asn Lys Ala Gln Ala Asn Glu Lys Ile Val Phe Leu Trp Asn Ser Glu
195 200 205
Val Val Lys Ile Leu Gly Asp Ser Leu Val Arg Ser Ile Asp Ile Phe
210 215 220
Asn Asn Val Glu Lys Thr Thr Val Thr Met Glu Ala Ala Gly Val Phe
225 230 235 240
Phe Ala Ile Gly His Gln Pro Asn Thr Ala Phe Leu Gly Gly Gln Leu
245 250 255
Ser Leu Asp Glu Asn Gly Tyr Ile Ile Thr Glu Lys Gly Ser Ser Arg
260 265 270
Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr
275 280 285
Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly Cys Met Ala Ala Leu
290 295 300
Asp Ala Glu Arg Phe Leu Glu Lys
305 310

<210> 203
<211> 311
<212> PRT
<213> Chlamydia pneumoniae

<400> 203
Met Ile His Ser Arg Leu Ile Ile Gly Ser Gly Pro Ser Gly Tyr
1 5 10 15
Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu His Pro Leu Leu Phe
20 25 30
Glu Gly Phe Phe Ser Gly Ile Ser Gly Gly Gln Leu Met Thr Thr Thr
35 40 45
Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Pro Lys

50	55	60
Leu Met Asn Asn Met Lys Glu Gln Ala Val Arg Phe Gly Thr Lys Thr		
65	70	75
Leu Ala Gln Asp Ile Ile Ser Val Asp Phe Ser Val Arg Pro Phe Ile		80
85	90	95
Leu Lys Ser Lys Glu Glu Thr Tyr Ser Cys Asp Ala Cys Ile Ile Ala		
100	105	110
Thr Gly Ala Ser Ala Lys Arg Leu Glu Ile Pro Gly Ala Gly Asn Asp		
115	120	125
Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala		
130	135	140
Ser Pro Ile Phe Lys Asn Lys Asp Leu Tyr Val Ile Gly Gly Asp		
145	150	155
Ser Ala Leu Glu Ala Leu Tyr Leu Thr Arg Tyr Gly Ser His Val		160
165	170	175
Tyr Val Val His Arg Arg Asp Lys Leu Arg Ala Ser Lys Ala Met Glu		
180	185	190
Ala Arg Ala Gln Asn Asn Glu Lys Ile Thr Phe Leu Trp Asn Ser Glu		
195	200	205
Ile Val Lys Ile Ser Gly Asp Ser Ile Val Arg Ser Val Asp Ile Lys		
210	215	220
Asn Val Gln Thr Gln Glu Ile Thr Thr Arg Glu Ala Ala Gly Val Phe		
225	230	235
Phe Ala Ile Gly His Lys Pro Asn Thr Asp Phe Leu Gly Gly Gln Leu		240
245	250	255
Thr Leu Asp Glu Ser Gly Tyr Ile Val Thr Glu Lys Gly Thr Ser Lys		
260	265	270
Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr		275
275	280	285
Tyr Arg Gln Ala Val Thr Ser Ala Gly Ser Gly Cys Ile Ala Ala Leu		
290	295	300
Asp Ala Glu Arg Phe Leu Gly		
305	310	

<210> 204

<211> 312

<212> PRT

<213> Chlamydia trachomatis

<400> 204			
Met Thr His Ala Lys Leu Val Ile Ile Gly Ser Gly Pro Ala Gly Tyr			
1	5	10	15
Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu Thr Pro Val Leu Phe			
20	25	30	
Glu Gly Phe Phe Ser Gly Ile Ala Gly Gly Gln Leu Met Thr Thr Thr			
35	40	45	
Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Val Leu Gly His Gln			
50	55	60	
Leu Met Asp Leu Met Lys Thr Gln Ala Gln Arg Phe Gly Thr Gln Val			
65	70	75	80
Leu Ser Lys Asp Ile Thr Ala Val Asp Phe Ser Val Arg Pro Phe Val			
85	90	95	
Leu Lys Ser Gly Lys Glu Thr Phe Thr Cys Asp Ala Cys Ile Ile Ala			
100	105	110	
Thr Gly Ala Ser Ala Lys Arg Leu Ser Ile Pro Gly Ala Gly Asp Asn			
115	120	125	
Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala			
130	135	140	
Ser Pro Ile Phe Arg Asp Lys Asp Leu Phe Val Val Gly Gly Asp			
145	150	155	160
Ser Ala Leu Glu Ala Met Phe Leu Thr Arg Tyr Gly Lys Arg Val			
165	170	175	
Phe Val Val His Arg Arg Asp Thr Leu Arg Ala Ser Lys Val Met Val			
180	185	190	
Asn Lys Ala Gln Ala Asn Glu Lys Ile Phe Phe Leu Trp Asn Ser Glu			
195	200	205	

Ile Val Lys Ile Ser Gly Asp Thr Leu Val Arg Ser Ile Asp Ile Tyr
 210 215 220
 Asn Asn Val Asp Glu Thr Thr Thr Met Glu Ala Ala Gly Val Phe
 225 230 235 240
 Phe Ala Ile Gly His Gln Pro Asn Thr Ala Phe Leu Gly Gly Gln Val
 245 250 255
 Ala Leu Asp Glu Asn Gly Tyr Ile Ile Thr Glu Lys Gly Ser Ser Arg
 260 265 270
 Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr
 275 280 285
 Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly Cys Met Ala Ala Leu
 290 295 300
 Asp Ala Glu Arg Phe Leu Glu Asn
 305 310

<210> 205

<211> 315

<212> PRT

<213> Clostridium litorale

<400> 205
 Met Glu Asn Val Tyr Asp Ile Ala Ile Ile Gly Ser Gly Pro Ala Gly
 1 5 10 15
 Leu Ala Ala Ala Leu Tyr Gly Ala Arg Ala Lys Met Lys Thr Leu Leu
 20 25 30
 Leu Glu Gly Met Lys Val Gly Gly Gln Ile Val Ile Thr His Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Val Pro Glu Ala Thr Gly Pro Ser Leu Ile
 50 55 60
 Gly Arg Met Glu Glu Gln Val Glu Glu Phe Gly Ala Glu Arg Val Met
 65 70 75 80
 Asp Asn Ile Val Asp Val Asp Phe Thr Asp Lys Ile Lys Val Leu Lys
 85 90 95
 Gly Ala Lys Gly Glu Tyr Lys Ala Lys Ala Val Ile Val Ala Thr Gly
 100 105 110
 Ala Ser Pro Lys Leu Ala Gly Cys Pro Gly Glu Lys Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Glu Asp
 130 135 140
 Met Glu Val Phe Val Ile Gly Gly Asp Thr Ala Val Glu Glu Ala
 145 150 155 160
 Met Phe Leu Thr Lys Phe Ala Arg Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Ala Glu Leu Arg Ala Ala Lys Ser Ile Gln Glu Lys Ala Phe Lys Asn
 180 185 190
 Glu Lys Leu Asn Phe Met Trp Asn Thr Val Ile Glu Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Ala Val Phe Lys Asn Arg Glu Thr Gly Glu
 210 215 220
 Val Thr Glu Phe Val Ala Pro Glu Glu Asp Gly Thr Phe Gly Ile Phe
 225 230 235 240
 Val Phe Ile Gly Tyr Asp Pro Lys Ser Ala Leu Val Glu Gly Lys Leu
 245 250 255
 Glu Leu Asp Glu Thr Gly Tyr Ile Pro Thr Asp Asn Met Lys Thr
 260 265 270
 Asn Val Glu Gly Val Phe Ala Ala Gly Asp Ile Arg Val Lys Ser Leu
 275 280 285
 Arg Gln Val Val Thr Ala Thr Ala Asp Gly Ala Ile Ala Ala Val Gln
 290 295 300
 Ala Glu Lys Tyr Ile Glu Glu Leu Phe Ala Glu
 305 310 315

<210> 206

<211> 321

<212> PRT

<213> Coxiella burnetii

<400> 206

Met Asn Lys Pro Gln His His Ser Leu Ile Ile Leu Gly Ser Gly Pro
1 5 10 15
Ala Gly Tyr Thr Asp Ala Ile Tyr Val Ala Arg Ala Asn Leu Lys Pro
20 25 30
Ile Met Ile Thr Gly Met Glu Gln Gly Gly Gln Leu Met Thr Thr Thr
35 40 45
Asp Val Ala Asn Trp Pro Gly Glu Ala Pro Gly Leu Gln Gly Pro Lys
50 55 60
Leu Leu Glu Arg Met Gln Lys His Ala Gly Gly Ala Leu Asn Thr Gln
65 70 75 80
Phe Ile Phe Asp His Ile Asn Lys Pro Asp Leu Asn Pro Arg Pro Phe
85 90 95
Leu Leu Gln Gly Asp Asn Ala Thr Tyr Ser Cys Asp Ala Leu Ile Ile
100 105 110
Ala Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Lys Pro
115 120 125
Tyr Met Gly Lys Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe
130 135 140
Tyr Arg Ala Lys Lys Val Ala Val Val Gly Gly Asn Thr Ser Val
145 150 155 160
Glu Glu Ala Leu Tyr Leu Ser His Ile Ala Ser His Val Thr Leu Ile
165 170 175
His Arg Arg Asp Lys Leu Arg Ala Glu Lys Met Leu Ser Ala Gln Leu
180 185 190
Ile Lys Lys Val Glu Glu Gly Lys Val Ala Ile Val Trp Ser His Val
195 200 205
Ile Glu Glu Val Leu Gly Asp Asp Gln Gly Val Thr Gly Val His Leu
210 215 220
Lys His Val Lys Glu Glu Lys Thr Gln Asp Leu Thr Ile Asp Gly Leu
225 230 235 240
Phe Ile Ala Ile Gly His Asp Pro Asn Thr Lys Ile Phe Lys Glu Gln
245 250 255
Leu Glu Met Asp Glu Ala Gly Tyr Leu Arg Ala Lys Ser Gly Leu Gln
260 265 270
Gly Asn Ala Thr Ala Thr Asn Ile Pro Gly Val Phe Pro Ala Val Val
275 280 285
Val Arg Gly Gln Leu Tyr Arg Gln Thr Ile Ala Ala Ala Gly Met Gly
290 295 300
Cys Met Pro Ala Leu Asp Ala Glu Arg Tyr Leu Asp Ser Leu Asn Gln
305 310 315 320
Ala

<210> 207

<211> 320

<212> PRT

<213> Escherichia coli

<400> 207

Gly Thr Thr Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro Ala
1 5 10 15
Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro Val
20 25 30
Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr Glu
35 40 45
Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu Leu
50 55 60
Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile Ile
65 70 75 80
Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg Leu
85 90 95
Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ala Thr
100 105 110

Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe Lys
 115 120 125
 Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr Arg
 130 135 140
 Asn Gln Lys Val Ala Val Ile Gly Gly Gly Asn Thr Ala Val Glu Glu
 145 150 155 160
 Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His Arg
 165 170 175
 Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met Asp
 180 185 190
 Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu Glu
 195 200 205
 Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg Asp
 210 215 220
 Thr Gln Asn Ser Asp Asn Ile Glu Ser Leu Asp Val Ala Gly Leu Phe
 225 230 235 240
 Val Ala Ile Gly His Ser Pro Asn Thr Ala Ile Phe Glu Gly Gln Leu
 245 250 255
 Glu Leu Glu Asn Gly Tyr Ile Lys Val Gln Ser Gly Ile His Gly Asn
 260 265 270
 Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val Met
 275 280 285
 Asp His Ile Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Gly Leu Ala Asp Ala Lys
 305 310 315 320

<210> 208

<211> 315

<212> PRT

<213> Eubacterium acidaminophilum

<400> 208

Met Glu Asn Val Tyr Asp Leu Ala Ile Ile Gly Ser Gly Pro Ala Gly
 1 5 10 15
 Leu Ala Ala Ala Leu Tyr Gly Ala Arg Ala Lys Met Lys Thr Ile Met
 20 25 30
 Ile Glu Gly Gln Lys Val Gly Gly Gln Ile Val Ile Thr His Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Val Arg Glu Ala Thr Gly Pro Ser Leu Ile
 50 55 60
 Glu Arg Met Glu Glu Gln Ala Asn Glu Phe Gly Ala Glu Lys Val Met
 65 70 75 80
 Asp Lys Ile Val Asp Val Asp Leu Asp Gly Lys Ile Lys Val Ile Lys
 85 90 95
 Gly Glu Lys Ala Glu Tyr Lys Ala Lys Ser Val Ile Leu Ala Thr Gly
 100 105 110
 Ala Ala Pro Arg Leu Ala Gly Cys Pro Gly Glu Gln Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Glu Asp
 130 135 140
 Met Glu Val Phe Val Val Gly Gly Asp Thr Ala Val Glu Glu Ala
 145 150 155 160
 Met Tyr Leu Ala Lys Phe Ala Arg Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Glu Leu Arg Ala Ala Lys Ser Ile Gln Glu Lys Ala Phe Lys Asn
 180 185 190
 Pro Lys Leu Asp Phe Met Trp Asn Ser Ala Ile Glu Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Ala Val Phe Lys Asn Leu Val Thr Gly Glu
 210 215 220
 Thr Thr Glu Tyr Phe Ala Asn Glu Glu Asp Gly Thr Phe Gly Ile Phe
 225 230 235 240
 Val Phe Ile Gly Tyr Ile Pro Lys Ser Asp Val Phe Lys Gly Lys Ile
 245 250 255
 Thr Leu Asp Asp Ala Gly Tyr Ile Ile Thr Asp Asp Asn Met Lys Thr

Asn	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Ile	Arg	Val	Lys	Ser	Leu
260				265								270			
275				275				280				285			
Arg	Gln	Val	Val	Thr	Ala	Cys	Ala	Asp	Gly	Ala	Ile	Ala	Ala	Thr	Gln
290				290				295				300			
Ala	Glu	Lys	Tyr	Val	Glu	Ala	Asn	Phe	Glu	Glu					
305				305				310				315			

<210> 209
<211> 318
<212> PRT
<213> Haemophilus influenzae

<400>	209														
Met	Ser	Asp	Ile	Lys	His	Ala	Lys	Leu	Ile	Leu	Gly	Ser	Gly	Pro	
1				5				10				15			
Ala	Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro
				20				25				30			
Val	Leu	Val	Thr	Gly	Leu	Gln	Gln	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Asp
				35				40				45			
Glu	Ile	Glu	Asn	Trp	Pro	Gly	Asp	Phe	Glu	Met	Thr	Thr	Gly	Ser	Gly
				50				55				60			
Leu	Met	Gln	Arg	Met	Leu	Gln	His	Ala	Glu	Lys	Phe	Glu	Thr	Glu	Ile
				65				70				75			80
Val	Phe	Asp	His	Ile	Asn	Arg	Val	Asp	Leu	Ser	Ser	Arg	Pro	Phe	Lys
					85				90				95		
Leu	Phe	Gly	Asp	Val	Gln	Asn	Phe	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala
				100				105				110			
Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Ile	Gly	Leu	Pro	Ser	Glu	Glu	Asn	Tyr
				115				120				125			
Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr
				130				135				140			
Arg	Asn	Lys	Pro	Val	Gly	Val	Ile	Gly	Gly	Asn	Thr	Ala	Val	Glu	
				145				150				155			160
Glu	Ala	Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Ser	Thr	Val	His	Leu	Ile	His
				165				170				175			
Arg	Arg	Asp	Ser	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Ile	Asp	Arg	Leu	Tyr
				180				185				190			
Lys	Lys	Val	Glu	Glu	Gly	Lys	Ile	Val	Leu	His	Thr	Asp	Arg	Thr	Leu
				195				200				205			
Asp	Glu	Val	Leu	Gly	Asp	Asn	Met	Gly	Val	Thr	Gly	Leu	Arg	Leu	Ala
				210				215				220			
Asn	Thr	Lys	Thr	Gly	Glu	Lys	Glu	Glu	Leu	Lys	Leu	Asp	Gly	Leu	Phe
				225				230				235			240
Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Glu	Ile	Phe	Gln	Gly	Gln	Leu
				245				250				255			
Glu	Leu	Asn	Asn	Gly	Tyr	Ile	Val	Val	Lys	Ser	Gly	Leu	Asp	Gly	Asn
				260				265				270			
Ala	Thr	Ala	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Met
				275				280				285			
Asp	His	Asn	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	Met
				290				295				300			
Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Ala	Gln	Glu	Ala		
				305				310				315			

<210> 210
<211> 311
<212> PRT
<213> Helicobacter pylori

<400>	210														
Met	Ile	Asp	Cys	Ala	Ile	Ile	Gly	Gly	Gly	Pro	Ala	Gly	Leu	Ser	Ala
1				5				10				15			
Gly	Leu	Tyr	Ala	Thr	Arg	Gly	Gly	Val	Lys	Asn	Ala	Val	Leu	Phe	Glu
				20				25				30			

Lys Gly Met Pro Gly Gly Gln Ile Thr Gly Ser Ser Glu Ile Glu Asn
 35 40 45
 Tyr Pro Gly Val Lys Glu Val Val Ser Gly Leu Asp Phe Met Gln Pro
 50 55 60
 Trp Gln Glu Gln Cys Phe Arg Phe Gly Leu Lys His Glu Met Thr Ala
 65 70 75 80
 Ile Gln Arg Val Ser Lys Lys Gly Ser His Phe Val Ile Leu Ala Glu
 85 90 95
 Asp Gly Lys Thr Phe Glu Ala Lys Ser Val Ile Ile Ala Thr Gly Gly
 100 105 110
 Ser Pro Lys Arg Thr Gly Ile Lys Gly Glu Ser Glu Tyr Trp Gly Lys
 115 120 125
 Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn Lys
 130 135 140
 Glu Val Ala Val Leu Gly Gly Asp Thr Ala Val Glu Glu Ala Ile
 145 150 155 160
 Tyr Leu Ala Asn Ile Cys Lys Val Tyr Leu Ile His Arg Arg Asp
 165 170 175
 Gly Phe Arg Cys Ala Pro Ile Thr Leu Glu His Ala Lys Asn Asn Ser
 180 185 190
 Lys Ile Glu Phe Leu Thr Pro Tyr Val Val Glu Glu Ile Lys Gly Asp
 195 200 205
 Ala Ser Gly Val Ser Ser Leu Ser Ile Lys Asn Thr Ala Thr Asn Glu
 210 215 220
 Lys Arg Glu Leu Val Val Pro Gly Leu Phe Ile Phe Val Gly Tyr Asp
 225 230 235 240
 Val Asn Asn Ala Val Leu Lys Gln Glu Asp Asn Ser Met Leu Cys Glu
 245 250 255
 Cys Asp Glu Tyr Gly Ser Ile Val Val Asp Phe Ser Met Lys Thr Asn
 260 265 270
 Val Gln Gly Leu Phe Ala Ala Gly Asp Ile Arg Ile Phe Ala Pro Lys
 275 280 285
 Gln Val Val Cys Ala Ala Ser Asp Gly Ala Thr Ala Ala Leu Ser Val
 290 295 300
 Ile Ser Tyr Leu Glu His His
 305 310

<210> 211
 <211> 311
 <212> PRT
 <213> Helicobacter pylori

<400> 211
 Met Ile Asp Cys Ala Ile Ile Gly Gly Gly Pro Ala Gly Leu Ser Ala
 1 5 10 15
 Gly Leu Tyr Ala Thr Arg Gly Gly Val Lys Asn Ala Val Leu Phe Glu
 20 25 30
 Lys Gly Met Pro Gly Gly Gln Ile Thr Gly Ser Ser Glu Ile Glu Asn
 35 40 45
 Tyr Pro Gly Val Lys Glu Val Val Ser Gly Leu Asp Phe Met Gln Pro
 50 55 60
 Trp Gln Glu Gln Cys Phe Arg Phe Gly Leu Lys His Glu Met Thr Ala
 65 70 75 80
 Val Gln Arg Val Ser Lys Lys Asp Ser His Phe Val Ile Leu Ala Glu
 85 90 95
 Asp Gly Lys Thr Phe Glu Ala Lys Ser Val Ile Ile Ala Thr Gly Gly
 100 105 110
 Ser Pro Lys Arg Thr Gly Ile Lys Gly Glu Ser Glu Tyr Trp Gly Lys
 115 120 125
 Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn Lys
 130 135 140
 Glu Val Ala Val Leu Gly Gly Asp Thr Ala Val Glu Glu Ala Ile
 145 150 155 160
 Tyr Leu Ala Asn Ile Cys Lys Lys Val Tyr Leu Ile His Arg Arg Asp
 165 170 175
 Gly Phe Arg Cys Ala Pro Ile Thr Leu Glu His Ala Lys Asn Asn Asp

180	185	190	
Lys Ile Glu Phe Leu Thr Pro Tyr Val Val Glu Glu Ile Lys Gly Asp			
195	200	205	
Ala Ser Gly Val Ser Ser Leu Ser Ile Lys Asn Thr Ala Thr Asn Glu			
210	215	220	
Lys Arg Glu Leu Val Val Pro Gly Phe Phe Ile Phe Val Gly Tyr Asp			
225	230	235	240
Val Asn Asn Ala Val Leu Lys Gln Glu Asp Asn Ser Met Leu Cys Lys			
245	250	255	
Cys Asp Glu Tyr Gly Ser Ile Val Val Asp Phe Ser Met Lys Thr Asn			
260	265	270	
Val Gln Gly Leu Phe Ala Ala Gly Asp Ile Arg Ile Phe Ala Pro Lys			
275	280	285	
Gln Val Val Cys Ala Ala Ser Asp Gly Ala Thr Ala Ala Leu Ser Val			
290	295	300	
Ile Ser Tyr Leu Glu His His			
305	310		

<210> 212

<211> 319

<212> PRT

<213> Listeria monocytogenes

<400> 212	212	212	
Met Ala Ser Glu Glu Lys Ile Tyr Asp Val Ile Ile Ile Gly Ala Gly			
1	5	10	15
Pro Ala Gly Met Thr Ala Ala Leu Tyr Thr Ser Arg Ala Asp Leu Asp			
20	25	30	
Thr Leu Met Ile Glu Arg Gly Val Pro Gly Gly Gln Met Val Asn Thr			
35	40	45	
Ala Glu Val Glu Asn Tyr Pro Gly Phe Asp Ser Ile Leu Gly Pro Asp			
50	55	60	
Leu Ser Asp Lys Met Leu Ser Gly Ala Lys Gln Phe Gly Ala Glu Tyr			
65	70	75	80
Ala Tyr Gly Asp Ile Lys Glu Val Val Asp Gly Lys Glu Phe Lys Thr			
85	90	95	
Val Thr Ala Gly Ser Lys Thr Tyr Lys Ala Arg Ala Ile Ile Ile Ala			
100	105	110	
Thr Gly Ala Glu His Arg Lys Leu Gly Ala Ala Gly Glu Glu Leu			
115	120	125	
Ser Gly Arg Gly Val Ser Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe			
130	135	140	
Lys Asn Arg Glu Leu Ile Val Val Gly Gly Asp Ser Ala Val Glu			
145	150	155	160
Glu Gly Thr Tyr Leu Thr Arg Tyr Ala Asp Lys Val Thr Ile Val His			
165	170	175	
Arg Arg Asp Lys Leu Arg Ala Gln Gln Ile Leu Gln Asp Arg Ala Phe			
180	185	190	
Lys Asp Glu Lys Val Asp Phe Ile Trp Asn Ser Thr Val Glu Glu Ile			
195	200	205	
Val Gly Asp Gly Lys Lys Val Thr Gly Ala Lys Leu Val Ser Thr Val			
210	215	220	
Asp Gly Ser Glu Ser Ile Met Pro Val Asp Gly Val Phe Ile Tyr Val			
225	230	235	240
Gly Leu Val Pro Leu Thr Lys Ala Phe Leu Asn Leu Gly Ile Thr Asp			
245	250	255	
Asp Glu Gly Tyr Ile Val Thr Asp Glu Glu Met Arg Thr Asn Leu Pro			
260	265	270	
Gly Ile Phe Ala Ala Gly Asp Val Arg Ala Lys Ser Leu Arg Gln Ile			
275	280	285	
Val Thr Ala Thr Gly Asp Gly Gly Leu Ala Gly Gln Asn Ala Gln Lys			
290	295	300	
Tyr Val Glu Glu Leu Lys Glu Ser Leu Glu Ala Glu Ala Ala Lys			
305	310	315	

<210> 213
<211> 315
<212> PRT
<213> Mycoplasma genitalium

<400> 213
Met Leu Lys Val Asn Ala Asp Phe Leu Thr Lys Asp Gln Val Ile Tyr
1 5 10 15
Asp Leu Val Ile Val Gly Ala Gly Pro Ala Gly Ile Ala Ser Ala Ile
20 25 30
Tyr Gly Lys Arg Ala Asn Leu Asn Leu Ala Ile Ile Glu Gly Asn Thr
35 40 45
Pro Gly Gly Lys Ile Val Lys Thr Asn Ile Val Glu Asn Tyr Pro Gly
50 55 60
Phe Lys Thr Ile Thr Gly Pro Glu Leu Gly Leu Glu Met Tyr Asn His
65 70 75 80
Leu Leu Ala Phe Glu Pro Val Val Phe Tyr Asn Asn Leu Ile Lys Ile
85 90 95
Asp His Leu Asn Asp Thr Phe Ile Leu Tyr Leu Asp Asn Lys Thr Thr
100 105 110
Val Phe Ser Lys Thr Val Ile Tyr Ala Thr Gly Met Glu Glu Arg Lys
115 120 125
Leu Gly Ile Glu Lys Glu Asp Tyr Phe Tyr Gly Lys Gly Ile Ser Tyr
130 135 140
Cys Ala Ile Cys Asp Ala Ala Leu Tyr Lys Gly Lys Thr Val Gly Val
145 150 155 160
Val Gly Gly Asn Ser Ala Ile Gln Glu Ala Ile Tyr Leu Ser Ser
165 170 175
Ile Ala Lys Thr Val His Leu Ile His Arg Arg Glu Val Phe Arg Ser
180 185 190
Asp Ala Leu Leu Val Glu Lys Leu Lys Ile Ser Asn Val Val Phe
195 200 205
His Leu Asn Ala Thr Val Lys Gln Leu Ile Gly Gln Glu Lys Leu Gln
210 215 220
Thr Val Lys Leu Ala Ser Thr Val Asp Lys Ser Glu Ser Glu Ile Ala
225 230 235 240
Ile Asp Cys Leu Phe Pro Tyr Ile Gly Phe Glu Ser Asn Asn Lys Pro
245 250 255
Val Leu Asp Leu Lys Leu Asn Leu Asp Gln Asn Gly Phe Ile Leu Gly
260 265 270
Asp Glu Asn Met Gln Thr Asn Ile Lys Gly Phe Tyr Val Ala Gly Asp
275 280 285
Cys Arg Ser Lys Ser Phe Arg Gln Ile Ala Thr Ala Ile Ser Asp Gly
290 295 300
Val Thr Ala Val Leu Lys Val Arg Asp Asp Ile
305 310 315

<210> 214
<211> 458
<212> PRT
<213> Mycobacterium leprae

<400> 214
Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
1 5 10 15
Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
20 25 30
Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
35 40 45
Leu Met Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
50 55 60
Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
65 70 75 80
Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
85 90 95
Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala

	100	105	110
Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr		Leu Gln Ile	
115	120	125	
Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr			
130	135	140	
Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly			
145	150	155	160
Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg			
165	170	175	
Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile			
180	185	190	
Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn			
195	200	205	
His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg			
210	215	220	
Leu Arg Asn Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly			
225	230	235	240
Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp			
245	250	255	
Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr			
260	265	270	
Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp			
275	280	285	
Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala			
290	295	300	
Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala			
305	310	315	320
Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr			
325	330	335	
Asp Trp Ser Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile			
340	345	350	
Glu Val Thr Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys			
355	360	365	
Pro Val Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met			
370	375	380	
Val Ala Pro Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu			
385	390	395	400
Thr Val Ala Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu			
405	410	415	
Phe Gln Val Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln			
420	425	430	
Pro Val Lys Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg			
435	440	445	
Asp Leu Ser Asp Val Val Pro Asn Leu Asn			
450	455		

<210> 215

<211> 315

<212> PRT

<213> Mycoplasma pneumoniae

<400> 215

Met Leu Lys Val Lys Ser Asp Phe Leu Thr Lys Asp Gln Val Ile Tyr			
1	5	10	15
Asp Val Ala Ile Val Gly Ala Gly Pro Ala Gly Ile Ala Ala Gly Ile			
20	25	30	
Tyr Gly Lys Arg Ala Asn Leu Asn Leu Ala Ile Ile Glu Gly Ser Thr			
35	40	45	
Pro Gly Gly Lys Val Val Lys Thr Asn Ile Val Glu Asn Tyr Pro Gly			
50	55	60	
Tyr Lys Ser Ile Thr Gly Pro Asp Leu Gly Leu Glu Met Tyr Asn His			
65	70	75	80
Leu Ile Asp Leu Glu Pro Thr Phe Phe Tyr Ala Asn Leu Ile Lys Leu			
85	90	95	
Asp Lys Ala Ala Asp Thr Phe Ile Leu Tyr Leu Asp Asp Lys Thr Val			
100	105	110	

Val Phe Ala Lys Thr Val Ile Tyr Ala Thr Gly Met Leu Glu Arg Lys
 115 120 125
 Leu Gly Val Ala Lys Glu Asp His Phe Tyr Gly Lys Gly Ile Ser Tyr
 130 135 140
 Cys Ala Ile Cys Asp Gly Ser Leu Tyr Lys Asp Gln Val Val Gly Val
 145 150 155 160
 Val Gly Gly Gly Asn Ser Ala Ile Gln Glu Ala Leu Tyr Leu Ala Ser
 165 170 175
 Met Ala Lys Thr Val His Leu Ile His Arg Arg Glu Gly Phe Arg Ala
 180 185 190
 Asp Glu Thr Ala Leu Asn Lys Leu Arg Asn Leu Pro Asn Val Val Phe
 195 200 205
 His Leu Asn Tyr Thr Val Lys Glu Leu Leu Gly Asn Asn Thr Leu Asn
 210 215 220
 Gly Ile Val Leu Gln Asn Thr Leu Asp His Ser Thr Lys Gln Ile Asp
 225 230 235 240
 Leu Asn Cys Val Phe Pro Tyr Ile Gly Phe Glu Ser Ile Thr Lys Pro
 245 250 255
 Val Glu His Leu Asn Leu Lys Leu Asp Pro Gln Gly Phe Leu Ile Thr
 260 265 270
 Asn Glu Gln Met Glu Thr Ser Leu Lys Gly Leu Phe Ala Ala Gly Asp
 275 280 285
 Cys Arg Ser Lys His Phe Arg Gln Ile Gly Thr Ala Ile Asn Asp Gly
 290 295 300
 Ile Ile Ala Val Leu Thr Ile Arg Asp Val Leu
 305 310 315

<210> 216
 <211> 311
 <212> PRT
 <213> Mycobacterium smegmatis

<400> 216
 Met Ser Thr Ser Gln Thr Val His Asp Val Ile Ile Gly Ser Gly
 1 5 10 15
 Pro Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Gln Leu Lys
 20 25 30
 Pro Leu Val Phe Glu Gly Thr Gln Phe Gly Gly Ala Leu Met Thr Thr
 35 40 45
 Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Glu Gly Ile Thr Gly Pro
 50 55 60
 Glu Leu Met Asp Gln Met Arg Glu Gln Ala Leu Arg Phe Arg Ala Asp
 65 70 75 80
 Leu Arg Met Glu Asp Val Asp Ala Val Gln Leu Glu Gly Pro Val Lys
 85 90 95
 Thr Val Val Val Gly Asp Glu Thr His Gln Ala Arg Ala Val Ile Leu
 100 105 110
 Ala Met Gly Ala Ala Ala Arg His Leu Gly Val Pro Gly Glu Ala
 115 120 125
 Leu Thr Gly Met Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe
 130 135 140
 Phe Arg Asp Gln Asp Ile Val Val Val Gly Gly Asp Ser Ala Met
 145 150 155 160
 Glu Glu Ala Thr Phe Leu Thr Arg Phe Ala Arg Ser Val Thr Leu Ile
 165 170 175
 His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile Met Leu Glu Arg Ala
 180 185 190
 Arg Ala Asn Glu Lys Ile Thr Phe Leu Thr Asn Thr Glu Ile Thr Gln
 195 200 205
 Ile Glu Gly Asp Pro Lys Val Thr Gly Val Arg Leu Arg Asp Thr Val
 210 215 220
 Thr Gly Glu Glu Ser Lys Leu Asp Val Thr Gly Val Phe Val Ala Ile
 225 230 235 240
 Gly His Asp Pro Arg Ser Glu Leu Val Arg Gly Gln Val Glu Leu Asp
 245 250 255
 Asp Glu Gly Tyr Val Lys Val Gln Gly Arg Thr Thr Tyr Thr Ser Leu

260	265	270
Asp Gly Val Phe Ala Ala Gly Asp	Leu Val Asp His Thr Tyr Arg Gln	
275	280	285
Ala Ile Thr Ala Ala Gly Ser	Gly Cys Ala Ala Ser	Ile Asp Ala Glu
290	295	300
Arg Trp Leu Ala Glu Gln Asp		
305	310	

<210> 217
<211> 335
<212> PRT
<213> *Mycobacterium tuberculosis*

<400> 217			
Met Thr Ala Pro Pro Val His Asp Arg Ala His His Pro Val Arg Asp			
1	5	10	15
Val Ile Val Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr			
20	25	30	
Ala Ala Arg Ala Gln Leu Ala Pro Leu Val Phe Glu Gly Thr Ser Phe			
35	40	45	
Gly Gly Ala Leu Met Thr Thr Asp Val Glu Asn Tyr Pro Gly Phe			
50	55	60	
Arg Asn Gly Ile Thr Gly Pro Glu Leu Met Asp Glu Met Arg Glu Gln			
65	70	75	80
Ala Leu Arg Phe Gly Ala Asp Leu Arg Met Glu Asp Val Glu Ser Val			
85	90	95	
Ser Leu His Gly Pro Leu Lys Ser Val Val Thr Ala Asp Gly Gln Thr			
100	105	110	
His Arg Ala Arg Ala Val Ile Leu Ala Met Gly Ala Ala Arg Tyr			
115	120	125	
Leu Gln Val Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ser			
130	135	140	
Cys Ala Thr Cys Asp Gly Phe Phe Arg Asp Gln Asp Ile Ala Val			
145	150	155	160
Ile Gly Gly Asp Ser Ala Met Glu Glu Ala Thr Phe Leu Thr Arg			
165	170	175	
Phe Ala Arg Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala			
180	185	190	
Ser Lys Ile Met Leu Asp Arg Ala Arg Asn Asn Asp Lys Ile Arg Phe			
195	200	205	
Leu Thr Asn His Thr Val Val Ala Val Asp Gly Asp Thr Thr Val Thr			
210	215	220	
Gly Leu Arg Val Arg Asp Thr Asn Thr Gly Ala Glu Thr Thr Leu Pro			
225	230	235	240
Val Thr Gly Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Gly Leu			
245	250	255	
Val Arg Glu Ala Ile Asp Val Asp Pro Asp Gly Tyr Val Leu Val Gln			
260	265	270	
Gly Arg Thr Thr Ser Thr Ser Leu Pro Gly Val Phe Ala Ala Gly Asp			
275	280	285	
Leu Val Asp Arg Thr Tyr Arg Gln Ala Val Thr Ala Ala Gly Ser Gly			
290	295	300	
Cys Ala Ala Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Ala			
305	310	315	320
Thr Gly Glu Ala Asp Ser Thr Asp Ala Leu Ile Gly Ala Gln Arg			
325	330	335	

<210> 218
<211> 334
<212> PRT
<213> *Neurospora crassa*

<400> 218			
Met His Ser Lys Val Val Ile Ile Gly Ser Gly Pro Ala Ala His Thr			
1	5	10	15

Ala Ala Ile Tyr Leu Ala Arg Ala Glu Leu Lys Pro Val Leu Tyr Glu
 20 25 30
 Gly Phe Met Ala Asn Gly Ile Ala Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Glu Ile Glu Asn Phe Pro Gly Phe Pro Asp Gly Ile Met Gly Gln
 50 55 60
 Glu Leu Met Asp Lys Met Lys Ala Gln Ser Glu Arg Phe Gly Thr Gln
 65 70 75 80
 Ile Ile Ser Glu Thr Val Ala Lys Val Asp Leu Ser Ala Arg Pro Phe
 85 90 95
 Lys Tyr Ala Thr Glu Trp Ser Pro Glu Glu Tyr His Thr Ala Asp Ser
 100 105 110
 Ile Ile Leu Ala Thr Gly Ala Ser Ala Arg Arg Leu His Leu Pro Gly
 115 120 125
 Glu Glu Lys Tyr Trp Gln Asn Gly Ile Ser Ala Cys Ala Val Cys Asp
 130 135 140
 Gly Ala Val Pro Ile Phe Arg Asn Lys His Leu Val Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Ala Glu Glu Ala Met Tyr Leu Thr Lys Tyr Gly Ser
 165 170 175
 His Val Thr Val Leu Val Arg Lys Asp Lys Leu Arg Ala Ser Ser Ile
 180 185 190
 Met Ala His Arg Leu Leu Asn His Glu Lys Val Thr Val Arg Phe Asn
 195 200 205
 Thr Val Gly Val Glu Val Lys Gly Asp Asp Lys Gly Leu Met Ser His
 210 215 220
 Leu Val Val Lys Asp Val Thr Thr Gly Lys Glu Glu Thr Leu Glu Ala
 225 230 235 240
 Asn Gly Leu Phe Tyr Ala Ile Gly His Asp Pro Ala Thr Ala Leu Val
 245 250 255
 Lys Gly Gln Leu Glu Thr Asp Ala Asp Gly Tyr Val Val Thr Lys Pro
 260 265 270
 Gly Thr Thr Leu Thr Ser Val Glu Gly Val Phe Ala Ala Gly Asp Val
 275 280 285
 Gln Asp Lys Arg Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys
 290 295 300
 Met Ala Ala Leu Asp Ala Glu Lys Phe Leu Ser Glu His Glu Glu Thr
 305 310 315 320
 Pro Ala Glu His Arg Asp Thr Ser Ala Val Gln Gly Asn Leu
 325 330

<210> 219
 <211> 333
 <212> PRT
 <213> Penicillium chrysogenum

<400> 219
 Val His Ser Lys Val Val Ile Ile Gly Ser Gly Ala Gly Ala His Thr
 1 5 10 15
 Ala Ala Ile Tyr Leu Ser Arg Ala Glu Leu Gln Pro Val Leu Tyr Glu
 20 25 30
 Gly Met Leu Ala Asn Gly Thr Ala Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Ser Gly Ile Gly Gly Ala
 50 55 60
 Glu Leu Met Asp Asn Met Arg Ala Gln Ser Glu Arg Phe Gly Thr Glu
 65 70 75 80
 Ile Ile Thr Glu Thr Ile Ser Lys Leu Asp Leu Ser Ser Arg Pro Phe
 85 90 95
 Lys Met Trp Thr Glu Trp Asn Asp Asp Glu Gly Ser Glu Pro Val Arg
 100 105 110
 Thr Ala Asp Ala Val Ile Ile Ala Thr Gly Ala Asn Ala Arg Arg Leu
 115 120 125
 Asn Leu Pro Gly Glu Glu Thr Tyr Trp Gln Asn Gly Ile Ser Ala Cys
 130 135 140
 Ala Val Cys Asp Gly Ala Val Pro Ile Phe Arg Asn Lys Pro Leu Tyr

145	150	155	160
Val Ile Gly Gly Gly Asp Ser Ala Ala Glu Glu Ala Met Phe Leu Ala			
165	170	175	
Lys Tyr Gly Ser Ser Val Thr Val Leu Val Arg Lys Asp Lys Leu Arg			
180	185	190	
Ala Ser Asn Ile Met Ala Asp Arg Leu Leu Ala His Pro Lys Cys Lys			
195	200	205	
Val Arg Phe Asn Thr Val Ala Thr Glu Val Ile Gly Glu Asn Lys Pro			
210	215	220	
Asn Gly Leu Met Thr His Leu Arg Val Lys Asp Val Leu Ser Asn Ala			
225	230	235	240
Glu Glu Val Val Glu Ala Asn Gly Leu Phe Tyr Ala Val Gly His Asp			
245	250	255	
Pro Ala Ser Gly Leu Val Lys Gly Gln Val Glu Leu Asp Asp Glu Gly			
260	265	270	
Tyr Ile Ile Thr Lys Pro Gly Thr Ser Phe Thr Asn Val Glu Gly Val			
275	280	285	
Phe Ala Cys Gly Asp Val Gln Asp Lys Arg Tyr Arg Gln Ala Ile Thr			
290	295	300	
Ser Ala Gly Ser Gly Cys Val Ala Ala Leu Glu Ala Glu Lys Phe Ile			
305	310	315	320
Ala Glu Thr Glu Thr His Gln Glu Ala Lys Pro Val Leu			
325	330		

<210> 220

<211> 310

<212> PRT

<213> Rickettsia prowazekii

<400> 220			
Met Lys Ile Thr Thr Lys Val Leu Ile Ile Gly Ser Gly Pro Ala Gly			
1	5	10	15
Leu Ser Ala Ala Ile Tyr Thr Ala Arg Ser Ala Leu Lys Pro Ile Leu			
20	25	30	
Ile Asn Gly Met Gln Pro Gly Gly Gln Leu Thr Met Thr Thr Asp Val			
35	40	45	
Glu Asn Tyr Pro Gly Phe Ala Glu Thr Ile Gln Gly Pro Trp Leu Met			
50	55	60	
Glu Gln Met Ser Met Gln Ala Lys Asn Val Gly Thr Glu Ile Ile Ser			
65	70	75	80
Asp Tyr Val Glu Arg Val Asp Leu Ser Lys Arg Pro Phe Lys Ile Phe			
85	90	95	
Thr Gly Thr Gly Asn Glu Tyr Glu Ala Asp Ser Ile Ile Ile Cys Thr			
100	105	110	
Gly Ala Glu Ser Lys Trp Leu Gly Ile Ala Ser Glu Gln Glu Phe Arg			
115	120	125	
Gly Phe Gly Val Ser Ser Cys Ala Ile Cys Asp Gly Phe Phe Phe Lys			
130	135	140	
Asn Gln Glu Ile Val Val Val Gly Gly Asn Ser Ala Leu Glu Glu			
145	150	155	160
Ala Leu Tyr Leu Thr Asn His Ala Asn Lys Val Thr Val Val His Arg			
165	170	175	
Arg Asn Ser Phe Arg Ala Glu Lys Ile Leu Gln Asp Arg Leu Phe Lys			
180	185	190	
Asn Pro Lys Ile Ser Val Ile Trp Asp His Ile Ile Asp Glu Ile Val			
195	200	205	
Gly Ser Asn Lys Pro Lys Ala Val Thr Gly Val Lys Ile Gln Asn Val			
210	215	220	
Tyr Thr Asn Glu Ile Asn Leu Val Asn Cys Ser Gly Val Phe Ile Ala			
225	230	235	240
Ile Gly His Ala Pro Asn Thr Ala Leu Phe Lys Gly Gln Ile Ala Ile			
245	250	255	
Asp Asp Asp Asn Tyr Ile Val Thr Gln Ser Gly Ser Thr Arg Thr Asn			
260	265	270	
Val Glu Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Ile Tyr Arg			
275	280	285	

Gln Ala Val Thr Ala Ala Ala Ser Gly Cys Met Ala Ala Leu Glu Val
290 295 300
Ala Lys Phe Leu Asn Lys
305 310

<210> 221
<211> 322
<212> PRT
<213> Schizosaccharomyces pombe

<400> 221
Met Thr His Asn Lys Val Val Ile Ile Gly Ser Gly Pro Ala Gly His
1 5 10 15
Thr Ala Ala Ile Tyr Leu Ala Arg Gly Glu Leu Lys Pro Val Met Tyr
20 25 30
Glu Gly Met Leu Ala Asn Gly Ile Ala Ala Gly Gly Gln Leu Thr Thr
35 40 45
Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Asp Gly Ile Asn Gly
50 55 60
Thr Thr Leu Thr Glu Asn Phe Arg Ala Gln Ser Leu Arg Phe Gly Thr
65 70 75 80
Glu Ile Ile Thr Glu Thr Val Ser Lys Leu Asp Leu Ser Ser Arg Pro
85 90 95
Phe Lys Tyr Trp Leu Glu Gly Ala Glu Glu Glu Pro His Thr Ala
100 105 110
Asp Ser Val Ile Leu Ala Thr Gly Ala Ser Ala Arg Arg Leu His Ile
115 120 125
Thr Gly Glu Asp Thr Tyr Trp Gln Ala Gly Ile Ser Ala Cys Ala Val
130 135 140
Cys Asp Gly Ala Val Pro Ile Tyr Arg Asn Lys Pro Leu Ala Val Val
145 150 155 160
Gly Gly Asp Ser Ala Ala Glu Glu Ala Gln Phe Leu Thr Lys Tyr
165 170 175
Gly Ser Lys Val Tyr Val Leu Val Arg Arg Asp Lys Leu Arg Ala Ser
180 185 190
Pro Ile Met Ala Lys Arg Leu Leu Ala Asn Pro Lys Val Glu Val Leu
195 200 205
Trp Asn Thr Val Ala Glu Glu Ala Gln Gly Asp Gly Lys Leu Leu Asn
210 215 220
Asn Leu Arg Ile Lys Asn Thr Asn Thr Asn Glu Val Ser Asp Leu Gln
225 230 235 240
Val Asn Gly Leu Phe Tyr Ala Ile Gly His Ile Pro Ala Thr Lys Leu
245 250 255
Val Ala Glu Gln Ile Glu Leu Asp Glu Ala Gly Tyr Ile Lys Thr Ile
260 265 270
Asn Gly Thr Pro Arg Thr Ser Ile Pro Gly Phe Phe Ala Ala Gly Asp
275 280 285
Val Gln Asp Lys Val Phe Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly
290 295 300
Cys Gln Ala Ala Leu Leu Ala Met His Tyr Leu Glu Glu Leu Glu Asp
305 310 315 320
Thr Asp

<210> 222
<211> 321
<212> PRT
<213> Streptomyces clavuligerus

<400> 222
Ser Asp Val Arg Asn Val Ile Ile Gly Ser Gly Pro Ala Gly Tyr
1 5 10 15
Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Gln Pro Leu Val Phe
20 25 30
Glu Gly Ala Val Thr Ala Gly Gly Ala Leu Met Asn Thr Thr Asp Val

35	40	45
Glu Asn Phe Pro Gly Phe Arg Asp Gly Ile Met Gly Pro Asp Leu Met		
50	55	60
Asp Asn Met Arg Ala Gln Ala Glu Arg Phe Gly Ala Glu Leu Ile Pro		
65	70	75
Asp Asp Val Val Ser Val Asp Leu Thr Gly Asp Ile Lys Thr Val Thr		
85	90	95
Asp Ser Ala Gly Thr Val His Arg Ala Lys Ala Val Ile Val Thr Thr		
100	105	110
Gly Ser Gln His Arg Lys Leu Gly Leu Pro Arg Glu Asp Ala Leu Ser		
115	120	125
Gly Arg Gly Val Ser Trp Cys Ala Thr Cys Asp Gly Phe Phe Lys		
130	135	140
Asp Gln Asp Ile Val Val Gly Gly Asp Thr Ala Met Glu Glu		
145	150	155
Ala Thr Phe Leu Ser Arg Phe Ala Lys Ser Val Thr Ile Val His Arg		
165	170	175
Arg Asp Ser Leu Arg Ala Ser Lys Ala Met Gln Asp Arg Ala Phe Ala		
180	185	190
Asp Pro Lys Ile Ser Phe Ala Trp Asn Ser Glu Val Ala Thr Ile His		
195	200	205
Gly Glu Gln Lys Leu Thr Gly Leu Thr Leu Arg Asp Thr Lys Thr Gly		
210	215	220
Glu Thr Arg Glu Leu Ala Ala Thr Gly Leu Phe Ile Ala Val Gly His		
225	230	235
Asp Pro Arg Thr Glu Leu Phe Lys Gly Gln Leu Asp Leu Asp Asp Glu		
245	250	255
Gly Tyr Leu Lys Val Ala Ser Pro Ser Thr Arg Thr Asn Leu Thr Gly		
260	265	270
Val Phe Ala Ala Gly Asp Val Val Asp His Thr Tyr Arg Gln Ala Ile		
275	280	285
Thr Ala Ala Gly Thr Gly Cys Ser Ala Ala Leu Asp Ala Glu Arg Tyr		
290	295	300
Leu Ala Ala Leu Ala Asp Ser Glu Gln Ile Ala Glu Pro Ala Pro Ala		
305	310	315
Val		320

<210> 223
 <211> 321
 <212> PRT
 <213> Streptomyces coelicolor

<400> 223		
Ser Asp Val Arg Asn Val Ile Ile Gly Ser Gly Pro Ala Gly Tyr		
1	5	10
Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Lys Pro Leu Val Phe		
20	25	30
Glu Gly Ala Val Thr Ala Gly Gly Ala Leu Met Asn Thr Thr Glu Val		
35	40	45
Glu Asn Phe Pro Gly Phe Gln Asp Gly Ile Met Gly Pro Glu Leu Met		
50	55	60
Asp Asn Met Arg Ala Gln Ala Glu Arg Phe Gly Ala Glu Leu Ile Pro		
65	70	75
Asp Asp Val Val Ala Val Asp Leu Ser Gly Glu Ile Lys Thr Val Thr		
85	90	95
Asp Thr Ala Gly Thr Val His Arg Ala Lys Ala Val Ile Val Thr Thr		
100	105	110
Gly Ser Gln His Arg Lys Leu Gly Leu Pro Asn Glu Asp Ala Leu Ser		
115	120	125
Gly Arg Gly Val Ser Trp Cys Ala Thr Cys Asp Gly Phe Phe Lys		
130	135	140
Asp Gln Asp Ile Ala Val Ile Gly Gly Asp Thr Ala Met Glu Glu		
145	150	155
Ala Thr Phe Leu Ser Arg Phe Ala Lys Ser Val Thr Ile Val His Arg		
165	170	175

Arg Asp Thr Leu Arg Ala Ser Lys Ala Met Gln Glu Arg Ala Phe Ala
 180 185 190
 Asp Pro Lys Ile Ser Phe Val Trp Asp Ser Glu Val Ala Glu Val Gln
 195 200 205
 Gly Asp Gln Lys Leu Ala Gly Leu Lys Leu Arg Asn Val Lys Thr Gly
 210 215 220
 Glu Leu Ser Asp Leu Pro Val Thr Gly Leu Phe Ile Ala Ile Gly His
 225 230 235 240
 Asp Pro Arg Thr Glu Leu Phe Lys Gly Gln Leu Asp Leu Asp Pro Glu
 245 250 255
 Gly Tyr Leu Lys Val Asp Ala Pro Ser Thr Arg Thr Asn Leu Thr Gly
 260 265 270
 Val Phe Gly Ala Gly Asp Val Val Asp His Thr Tyr Arg Gln Ala Ile
 275 280 285
 Thr Ala Ala Gly Thr Gly Cys Ser Ala Ala Val Asp Ala Glu Pro Phe
 290 295 300
 Leu Ala Ala Leu Ser Asp Glu Asp Lys Ala Glu Pro Glu Lys Thr Ala
 305 310 315 320
 Val

<210> 224
 <211> 307
 <212> PRT
 <213> Treponema pallidum

<400> 224
 Met Glu Thr Asp Tyr Asp Val Ile Ile Val Gly Ala Gly Ala Ala Gly
 1 5 10 15
 Leu Ser Ala Ala Gln Tyr Ala Cys Arg Ala Asn Leu Arg Thr Leu Val
 20 25 30
 Ile Glu Ser Lys Ala His Gly Gly Gln Ala Leu Leu Ile Asp Ser Leu
 35 40 45
 Glu Asn Tyr Pro Gly Tyr Ala Thr Pro Ile Ser Gly Phe Glu Tyr Ala
 50 55 60
 Glu Asn Met Lys Lys Gln Ala Val Ala Phe Gly Ala Gln Ile Ala Tyr
 65 70 75 80
 Glu Glu Val Thr Thr Ile Gly Lys Arg Asp Ser Val Phe His Ile Thr
 85 90 95
 Thr Gly Thr Gly Ala Tyr Thr Ala Met Ser Val Ile Leu Ala Thr Gly
 100 105 110
 Ala Glu His Arg Lys Met Gly Ile Pro Gly Glu Ser Glu Phe Leu Gly
 115 120 125
 Arg Gly Val Ser Tyr Cys Ala Thr Cys Asp Gly Pro Phe Phe Arg Asn
 130 135 140
 Lys His Val Val Val Ile Gly Gly Asp Ala Ala Cys Asp Glu Ser
 145 150 155 160
 Leu Val Leu Ser Arg Leu Thr Asp Arg Val Thr Met Ile His Arg Arg
 165 170 175
 Asp Thr Leu Arg Ala Gln Lys Ala Ile Ala Glu Arg Thr Leu Lys Asn
 180 185 190
 Pro His Ile Ala Val Gln Trp Asn Thr Thr Leu Glu Ala Val Arg Gly
 195 200 205
 Glu Thr Lys Val Ser Ser Val Leu Leu Lys Asp Val Lys Thr Gly Glu
 210 215 220
 Thr Arg Glu Leu Ala Cys Asp Ala Val Phe Phe Ile Gly Met Val
 225 230 235 240
 Pro Ile Thr Gly Leu Leu Pro Asp Ala Glu Lys Asp Ser Thr Gly Tyr
 245 250 255
 Ile Val Thr Asp Asp Glu Met Arg Thr Ser Val Glu Gly Ile Phe Ala
 260 265 270
 Ala Gly Asp Val Arg Ala Lys Ser Phe Arg Gln Val Ile Thr Ala Thr
 275 280 285
 Ser Asp Gly Ala Leu Ala Ala His Ala Ala Ala Ser Tyr Ile Asp Thr
 290 295 300
 Leu Gln Asn

<210> 225
<211> 45
<212> PRT
<213> *Vibrio fischeri*

<400> 225
Met Asn Val Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro Ala
1 5 10 15
Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Asn Pro Val
20 25 30
Met Ile Thr Gly Met Gln Gln Gly Gly Gln Leu Thr Asn
35 40 45

<210> 226
<211> 318
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 226
Val His Asn Lys Val Thr Ile Ile Gly Ser Gly Pro Ala Ala His Thr
1 5 10 15
Ala Ala Ile Tyr Leu Ala Arg Ala Glu Ile Lys Pro Ile Leu Tyr Glu
20 25 30
Gly Met Met Ala Asn Gly Ile Ala Ala Gly Gly Gln Leu Thr Thr Thr
35 40 45
Thr Glu Ile Glu Asn Phe Pro Gly Phe Pro Asp Gly Leu Thr Gly Ser
50 55 60
Glu Leu Met Asp Arg Met Arg Glu Gln Ser Thr Lys Phe Gly Thr Glu
65 70 75 80
Ile Ile Thr Glu Thr Val Ser Lys Val Asp Leu Ser Ser Lys Pro Phe
85 90 95
Lys Leu Trp Thr Glu Phe Asn Glu Asp Ala Glu Pro Val Thr Thr Asp
100 105 110
Ala Ile Ile Leu Ala Thr Gly Ala Ser Ala Lys Arg Met His Leu Pro
115 120 125
Gly Glu Glu Thr Tyr Trp Gln Lys Gly Ile Ser Ala Cys Ala Val Cys
130 135 140
Asp Gly Ala Val Pro Ile Phe Arg Asn Lys Pro Leu Ala Val Ile Gly
145 150 155 160
Gly Gly Asp Ser Ala Cys Glu Glu Ala Gln Phe Leu Thr Lys Tyr Gly
165 170 175
Ser Lys Val Phe Met Leu Val Arg Lys Asp His Leu Arg Ala Ser Thr
180 185 190
Ile Met Gln Lys Arg Ala Glu Lys Asn Glu Lys Ile Glu Ile Leu Tyr
195 200 205
Asn Thr Val Ala Leu Glu Ala Lys Gly Asp Gly Lys Leu Leu Asn Ala
210 215 220
Leu Arg Ile Lys Asn Thr Lys Lys Asn Glu Glu Thr Asp Leu Pro Val
225 230 235 240
Ser Gly Leu Phe Tyr Ala Ile Gly His Thr Pro Ala Thr Lys Ile Val
245 250 255
Ala Gly Gln Val Asp Thr Asp Glu Ala Gly Tyr Ile Lys Thr Val Pro
260 265 270
Gly Ser Ser Leu Thr Ser Val Pro Gly Phe Phe Ala Ala Gly Asp Val
275 280 285
Gln Asp Ser Lys Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly Cys
290 295 300
Met Ala Ala Leu Asp Ala Glu Lys Tyr Leu Thr Ser Leu Glu
305 310 315

<210> 227
<211> 342

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 227

Met Ile Lys His Ile Val Ser Pro Phe Arg Thr Asn Phe Val Gly Ile
1 5 10 15
Ser Lys Ser Val Leu Ser Arg Met Ile His His Lys Val Thr Ile Ile
20 25 30
Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Leu Ala Arg Ala
35 40 45
Glu Met Lys Pro Thr Leu Tyr Glu Gly Met Met Ala Asn Gly Ile Ala
50 55 60
Ala Gly Gly Gln Leu Thr Thr Thr Asp Ile Glu Asn Phe Pro Gly
65 70 75 80
Phe Pro Glu Ser Leu Ser Gly Ser Glu Leu Met Glu Arg Met Arg Lys
85 90 95
Gln Ser Ala Lys Phe Gly Thr Asn Ile Ile Thr Glu Thr Val Ser Lys
100 105 110
Val Asp Leu Ser Ser Lys Pro Phe Arg Leu Trp Thr Glu Phe Asn Glu
115 120 125
Asp Ala Glu Pro Val Thr Thr Asp Ala Ile Ile Leu Ala Thr Gly Ala
130 135 140
Ser Ala Lys Arg Met His Leu Pro Gly Glu Glu Thr Tyr Trp Gln Gln
145 150 155 160
Gly Ile Ser Ala Cys Ala Val Cys Asp Gly Ala Val Pro Ile Phe Arg
165 170 175
Asn Lys Pro Leu Ala Val Ile Gly Gly Asp Ser Ala Cys Glu Glu
180 185 190
Ala Glu Phe Leu Thr Lys Tyr Ala Ser Lys Val Tyr Ile Leu Val Arg
195 200 205
Lys Asp His Phe Arg Ala Ser Val Ile Met Gln Arg Arg Ile Glu Lys
210 215 220
Asn Pro Asn Ile Ile Val Leu Phe Asn Thr Val Ala Leu Glu Ala Lys
225 230 235 240
Gly Asp Gly Lys Leu Leu Asn Met Leu Arg Ile Lys Asn Thr Lys Ser
245 250 255
Asn Val Glu Asn Asp Leu Glu Val Asn Gly Leu Phe Tyr Ala Ile Gly
260 265 270
His Ser Pro Ala Thr Asp Ile Val Lys Gly Gln Val Asp Glu Glu Glu
275 280 285
Thr Gly Tyr Ile Lys Thr Val Pro Gly Ser Ser Leu Thr Ser Val Pro
290 295 300
Gly Phe Phe Ala Ala Gly Asp Val Gln Asp Ser Arg Tyr Arg Gln Ala
305 310 315 320
Val Thr Ser Ala Gly Ser Gly Cys Ile Ala Ala Leu Asp Ala Glu Arg
325 330 335
Tyr Leu Ser Ala Gln Glu
340

<210> 228

<211> 499

<212> PRT

<213> *Bos taurus*

<400> 228

Met Asn Gly Ser Lys Asp Leu Pro Glu Pro Tyr Asp Tyr Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Lys Tyr Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Arg Asp Ser Arg Asn Tyr Gly Trp Asn Val Glu Glu Thr Val Lys His

85	90	95
Asp Trp Glu Arg Met Thr Glu Ala Val Gln Asn His Ile Gly Ser Leu		
100	105	110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Thr Tyr Glu		
115	120	125
Asn Ala Tyr Gly Glu Phe Val Gly Pro His Arg Ile Lys Ala Thr Asn		
130	135	140
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala		
145	150	155
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr		
165	170	175
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys		
180	185	190
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe		
195	200	205
Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu		
210	215	220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met		
225	230	235
Gln Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val		
245	250	255
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Ile Ala Lys		
260	265	270
Ser Thr Asp Ser Asp Gln Thr Ile Glu Gly Glu Tyr Asn Thr Val Leu		
275	280	285
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Asn		
290	295	300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Glu		
305	310	315
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu		
325	330	335
Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu		
340	345	350
Leu Ala Gln Arg Leu Tyr Gly Gly Ser Thr Val Lys Cys Asp Tyr Glu		
355	360	365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ser Cys Gly		
370	375	380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Val Glu		
385	390	395
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg		
405	410	415
Asp Asn Asn Lys Cys Tyr Ala Lys Val Val Cys Asn Ile Lys Asp Asn		
420	425	430
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val		
435	440	445
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Asp Gln		
450	455	460
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr		
465	470	475
Thr Leu Ser Val Thr Lys Arg Ser Gly Gly Asn Ile Leu Gln Thr Gly		
485	490	495
Cys Cys Gly		

<210> 229
 <211> 523
 <212> PRT
 <213> Caenorhabditis elegans

<400> 229
 Met Tyr Ile Lys Gly Asn Ala Val Gly Gly Leu Lys Glu Leu Lys Ala
 1 5 10 15
 Leu Lys Gln Asp Tyr Leu Lys Glu Trp Leu Arg Asp His Thr Tyr Asp
 20 25 30
 Leu Ile Val Ile Gly Gly Ser Gly Gly Leu Ala Ala Lys Glu
 35 40 45

Ala Ser Arg Leu Gly Lys Lys Val Ala Cys Leu Asp Phe Val Lys Pro
 50 55 60
 Ser Pro Gln Gly Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val
 65 70 75 80
 Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ser Leu Leu Gly His
 85 90 95
 Ser Ile His Asp Ala Lys Lys Tyr Gly Trp Lys Leu Pro Glu Gly Lys
 100 105 110
 Val Glu His Gln Trp Asn His Leu Arg Asp Ser Val Gln Asp His Ile
 115 120 125
 Ala Ser Leu Asn Trp Gly Tyr Arg Val Gln Leu Arg Glu Lys Thr Val
 130 135 140
 Thr Tyr Ile Asn Ser Tyr Gly Glu Phe Thr Gly Pro Phe Glu Ile Ser
 145 150 155 160
 Ala Thr Asn Lys Lys Lys Val Glu Lys Leu Thr Ala Asp Arg Phe
 165 170 175
 Leu Ile Ser Thr Gly Leu Arg Pro Lys Tyr Pro Glu Ile Pro Gly Val
 180 185 190
 Lys Glu Tyr Thr Ile Thr Ser Asp Asp Leu Phe Gln Leu Pro Tyr Ser
 195 200 205
 Pro Gly Lys Thr Leu Cys Val Gly Ala Ser Tyr Val Ser Leu Glu Cys
 210 215 220
 Ala Gly Phe Leu His Gly Phe Gly Phe Asp Val Thr Val Met Val Arg
 225 230 235 240
 Ser Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Glu Arg Ile Arg
 245 250 255
 Lys His Met Ile Ala Tyr Gly Met Lys Phe Glu Ala Gly Val Pro Thr
 260 265 270
 Arg Ile Glu Gln Ile Asp Glu Lys Thr Asp Glu Lys Ala Gly Lys Tyr
 275 280 285
 Arg Val Phe Trp Pro Lys Lys Asn Glu Glu Thr Gly Glu Met Gln Glu
 290 295 300
 Val Ser Glu Glu Tyr Asn Thr Ile Leu Met Ala Ile Gly Arg Glu Ala
 305 310 315 320
 Val Thr Asp Asp Val Gly Leu Thr Thr Ile Gly Val Glu Arg Ala Lys
 325 330 335
 Ser Lys Lys Val Leu Gly Arg Arg Glu Gln Ser Thr Thr Ile Pro Trp
 340 345 350
 Val Tyr Ala Ile Gly Asp Val Leu Glu Gly Thr Pro Glu Leu Thr Pro
 355 360 365
 Val Ala Ile Gln Ala Gly Arg Val Leu Met Arg Arg Ile Phe Asp Gly
 370 375 380
 Ala Asn Glu Leu Thr Glu Tyr Asp Gln Ile Pro Thr Thr Val Phe Thr
 385 390 395 400
 Pro Leu Glu Tyr Gly Cys Cys Gly Leu Ser Glu Glu Asp Ala Met Met
 405 410 415
 Lys Tyr Gly Lys Asp Asn Ile Ile Tyr His Asn Val Phe Asn Pro
 420 425 430
 Leu Glu Tyr Thr Ile Ser Glu Arg Met Asp Lys Asp His Cys Tyr Leu
 435 440 445
 Lys Met Ile Cys Leu Arg Asn Glu Glu Glu Lys Val Val Gly Phe His
 450 455 460
 Ile Leu Thr Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Gly Ile Ala
 465 470 475 480
 Leu Lys Leu Ala Ala Lys Lys Ala Asp Phe Asp Arg Leu Ile Gly Ile
 485 490 495
 His Pro Thr Val Ala Glu Asn Phe Thr Thr Leu Thr Leu Glu Lys Lys
 500 505 510
 Glu Gly Asp Glu Glu Leu Gln Ala Ser Gly Cys
 515 520

<210> 230
 <211> 497
 <212> PRT
 <213> Homo sapiens

<400> 230

Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
85 90 95
Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
100 105 110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
115 120 125
Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
130 135 140
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Ser Phe Leu Ile Ala
145 150 155 160
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
165 170 175
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
180 185 190
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
195 200 205
Leu Ala Gly Ile Gly Leu Gly Val Thr Val Met Val Arg Ser Ile Leu
210 215 220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
225 230 235 240
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
245 250 255
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln
260 265 270
Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met
275 280 285
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr
290 295 300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
305 310 315 320
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
325 330 335
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
340 345 350
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu
355 360 365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly
370 375 380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
385 390 395 400
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg
405 410 415
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn
420 425 430
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
435 440 445
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln
450 455 460
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr
465 470 475 480
Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly
485 490 495
Cys

<210> 231

<211> 541
<212> PRT
<213> Plasmodium falciparum

<400> 231
Met Cys Lys Asp Lys Asn Glu Lys Lys Asn Tyr Glu His Val Asn Ala
1 5 10 15
Asn Glu Lys Asn Gly Tyr Leu Ala Ser Glu Lys Asn Glu Leu Thr Lys
20 25 30
Asn Lys Val Glu Glu His Thr Tyr Asp Tyr Asp Tyr Val Val Ile Gly
35 40 45
Gly Gly Pro Gly Gly Met Ala Ser Ala Lys Glu Ala Ala Ala His Gly
50 55 60
Ala Arg Val Leu Leu Phe Asp Tyr Val Lys Pro Ser Ser Gln Gly Thr
65 70 75 80
Lys Trp Gly Ile Gly Gly Thr Cys Val Asn Val Gly Cys Val Pro Lys
85 90 95
Lys Leu Met His Tyr Ala Gly His Met Gly Ser Ile Phe Lys Leu Asp
100 105 110
Ser Lys Ala Tyr Gly Trp Lys Phe Asp Asn Leu Lys His Asp Trp Lys
115 120 125
Lys Leu Val Thr Thr Val Gln Ser His Ile Arg Ser Leu Asn Phe Ser
130 135 140
Tyr Met Thr Gly Leu Arg Ser Ser Lys Val Lys Tyr Ile Asn Gly Leu
145 150 155 160
Ala Lys Leu Lys Asp Lys Asn Thr Val Ser Tyr Tyr Leu Lys Gly Asp
165 170 175
Leu Ser Lys Glu Glu Thr Val Thr Gly Lys Tyr Ile Leu Ile Ala Thr
180 185 190
Gly Cys Arg Pro His Ile Pro Asp Asp Val Glu Gly Ala Lys Glu Leu
195 200 205
Ser Ile Thr Ser Asp Asp Ile Phe Ser Leu Lys Lys Asp Pro Gly Lys
210 215 220
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ser Gly Phe
225 230 235 240
Leu Asn Ser Leu Gly Tyr Asp Val Thr Val Ala Val Arg Ser Ile Val
245 250 255
Leu Arg Gly Phe Asp Gln Gln Cys Ala Val Lys Val Lys Leu Tyr Met
260 265 270
Glu Glu Gln Gly Val Met Phe Lys Asn Gly Ile Leu Pro Lys Lys Leu
275 280 285
Thr Lys Met Asp Asp Lys Ile Leu Val Glu Phe Ser Asp Lys Thr Ser
290 295 300
Glu Leu Tyr Asp Thr Val Leu Tyr Ala Ile Gly Arg Lys Gly Asp Ile
305 310 315 320
Asp Gly Leu Asn Leu Glu Ser Leu Asn Met Asn Val Asn Lys Ser Asn
325 330 335
Asn Lys Ile Ile Ala Asp His Leu Ser Cys Thr Asn Ile Pro Ser Ile
340 345 350
Phe Ala Val Gly Asp Val Ala Glu Asn Val Pro Glu Leu Ala Pro Val
355 360 365
Ala Ile Lys Ala Gly Glu Ile Leu Ala Arg Arg Leu Phe Lys Asp Ser
370 375 380
Asp Glu Ile Met Asp Tyr Ser Tyr Ile Pro Thr Ser Ile Tyr Thr Pro
385 390 395 400
Ile Glu Tyr Gly Ala Cys Gly Tyr Ser Glu Glu Lys Ala Tyr Glu Leu
405 410 415
Tyr Gly Lys Ser Asn Val Glu Val Phe Leu Gln Glu Phe Asn Asn Leu
420 425 430
Glu Ile Ser Ala Val His Arg Gln Lys His Ile Arg Ala Gln Lys Asp
435 440 445
Glu Tyr Asp Leu Asp Val Ser Ser Thr Cys Leu Ala Lys Leu Val Cys
450 455 460
Leu Lys Asn Glu Asp Asn Arg Val Ile Gly Phe His Tyr Val Gly Pro
465 470 475 480
Asn Ala Gly Glu Val Thr Gln Gly Met Ala Leu Ala Leu Arg Leu Lys
485 490 495

Val	Lys	Lys	Lys	Asp	Phe	Asp	Asn	Cys	Ile	Gly	Ile	His	Pro	Thr	Asp
				500				505					510		
Ala	Glu	Ser	Phe	Met	Asn	Leu	Phe	Val	Thr	Ile	Ser	Ser	Gly	Leu	Ser
				515				520					525		
Tyr	Ala	Ala	Lys	Gly	Gly	Cys	Gly	Gly	Gly	Lys	Cys	Gly			
				530				535					540		

<210> 232
<211> 535
<212> PRT
<213> Arabidopsis thaliana

<400> 232																
Met	Ala	Ala	Ser	Pro	Lys	Ile	Gly	Ile	Gly	Ile	Ala	Ser	Val	Ser	Ser	
						1	5		10		15					
Pro	His	Arg	Val	Ser	Ala	Ala	Ser	Ser	Ala	Leu	Ser	Pro	Pro	Pro	His	
						20		25				30				
Leu	Phe	Phe	Leu	Thr	Thr	Thr	Thr	Thr	Arg	His	Gly	Gly	Ser	Tyr		
						35		40		45						
Leu	Leu	Arg	Gln	Pro	Thr	Arg	Thr	Arg	Ser	Ser	Asp	Ser	Leu	Arg	Leu	
						50		55		60						
Arg	Val	Ser	Ala	Thr	Ala	Asn	Ser	Pro	Ser	Ser	Ser	Ser	Gly	Gly		
						65		70		75			80			
Glu	Ile	Ile	Glu	Asn	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr	
						85			90			95				
Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro	Val	Val	Phe	
						100		105				110				
Glu	Gly	Tyr	Gln	Met	Gly	Gly	Val	Pro	Gly	Gly	Gln	Leu	Met	Thr	Thr	
						115		120				125				
Thr	Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Thr	Gly	Pro	
						130		135				140				
Asp	Leu	Met	Glu	Lys	Met	Arg	Lys	Gln	Ala	Glu	Arg	Trp	Gly	Ala	Glu	
						145		150		155			160			
Leu	Tyr	Pro	Glu	Asp	Val	Glu	Ser	Leu	Ser	Val	Thr	Thr	Ala	Pro	Phe	
						165			170			175				
Thr	Val	Gln	Thr	Ser	Glu	Arg	Lys	Val	Lys	Cys	His	Ser	Ile	Ile	Tyr	
						180		185				190				
Ala	Thr	Gly	Ala	Thr	Ala	Arg	Arg	Leu	Arg	Leu	Pro	Arg	Glu	Glu		
						195		200				205				
Phe	Trp	Ser	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Ile	Cys	Asp	Gly	Ala	Ser	
						210		215				220				
Pro	Leu	Phe	Lys	Gly	Gln	Val	Leu	Ala	Val	Val	Gly	Gly	Gly	Asp	Thr	
						225		230		235			240			
Ala	Thr	Glu	Glu	Ala	Leu	Tyr	Leu	Thr	Lys	Tyr	Ala	Arg	His	Val	His	
						245			250			255				
Leu	Leu	Val	Arg	Arg	Asp	Gln	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Asp	
						260		265				270				
Arg	Val	Ile	Asn	Asn	Pro	Asn	Ile	Thr	Val	His	Tyr	Asn	Thr	Glu	Thr	
						275		280			285					
Val	Asp	Val	Leu	Ser	Asn	Thr	Lys	Gly	Gln	Met	Ser	Gly	Ile	Leu	Leu	
						290		295			300					
Arg	Arg	Leu	Asp	Thr	Gly	Glu	Glu	Thr	Glu	Leu	Glu	Ala	Lys	Gly	Leu	
						305		310		315			320			
Phe	Tyr	Gly	Ile	Gly	His	Ser	Pro	Asn	Ser	Gln	Leu	Leu	Glu	Gly	Gln	
						325			330			335				
Val	Glu	Leu	Asp	Ser	Ser	Gly	Tyr	Val	Leu	Val	Arg	Glu	Gly	Thr	Ser	
						340		345			350			350		
Asn	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	His	
						355		360			365					
Glu	Trp	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ile	Ala	Ala	
						370		375			380					
Leu	Ser	Ala	Glu	Arg	Tyr	Leu	Thr	Ser	Asn	Asn	Leu	Leu	Val	Glu	Phe	
						385		390			395			400		
His	Gln	Pro	Gln	Thr	Glu	Glu	Ala	Lys	Lys	Glu	Phe	Thr	Gln	Arg	Asp	
						405			410			415				
Val	Gln	Glu	Lys	Phe	Asp	Ile	Thr	Leu	Thr	Lys	His	Lys	Gly	Gln	Tyr	

	420		425		430										
Ala	Leu	Arg	Lys	Leu	Tyr	His	Glu	Ser	Pro	Arg	Val	Ile	Leu	Val	Leu
				435			440					445			
Tyr	Thr	Ser	Pro	Thr	Cys	Gly	Pro	Cys	Arg	Thr	Leu	Lys	Pro	Ile	Leu
				450			455				460				
Asn	Lys	Val	Val	Asp	Glu	Tyr	Asn	His	Asp	Val	His	Phe	Val	Glu	Ile
				465			470			475			480		
Asp	Ile	Glu	Glu	Asp	Gln	Glu	Ile	Ala	Glu	Ala	Ala	Gly	Ile	Met	Gly
				485			490				495				
Thr	Pro	Cys	Val	Gln	Phe	Phe	Lys	Asn	Lys	Glu	Met	Leu	Arg	Leu	Gly
				500			505				510				
Asn	Val	Leu	Ser	Val	Leu	Lys	Leu	His	Arg	Leu	Leu	Cys	Ser	Gly	Leu
				515			520				525				
Ala	Lys	Asp	Ser	Glu	Ser	Val									
				530			535								

<210> 233
<211> 117
<212> PRT
<213> Helianthus annuus

	400		233											
Ala	Val	Val	Glu	Ala	Tyr	Gly	Glu	Gly	Lys	Asn	Val	Leu	Gly	Gly
			1			5			10			15		
Leu	Lys	Val	Lys	Asn	Val	Val	Ser	Gly	Glu	Val	Ser	Asp	Leu	Lys
				20			25			30				
Asn	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe
			35			40			45					
Asp	Gly	Gln	Leu	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	Val	Val	Thr	Lys
			50			55			60					
Gly	Thr	Thr	Ile	Ser	Ser	Val	Lys	Gly	Val	Phe	Ala	Ala	Gly	Asp
			65			70			75			80		
Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Ser	Gly
			85			90			95					
Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	Glu	Ile	Gly	Ser
			100			105				110				
Glu	Gly	Lys	Ser	Asp										
				115										

<210> 234
<211> 300
<212> PRT
<213> Arcaeoglobus fulgidus

	400		234											
Met	Tyr	Asp	Val	Ala	Ile	Ile	Gly	Gly	Pro	Ala	Gly	Leu	Thr	Ala
			1			5			10			15		
Ala	Leu	Tyr	Ser	Ala	Arg	Tyr	Gly	Leu	Lys	Thr	Val	Phe	Phe	Thr
			20			25			30					
Val	Asp	Pro	Val	Ser	Gln	Leu	Ser	Leu	Ala	Ala	Lys	Ile	Glu	Asn
			35			40			45					
Pro	Gly	Phe	Glu	Gly	Ser	Gly	Met	Glu	Leu	Leu	Glu	Lys	Met	Glu
			50			55			60					
Gln	Ala	Ala	Lys	Ala	Gly	Ala	Glu	Trp	Lys	Leu	Glu	Lys	Val	Arg
			65			70			75			80		
Val	Glu	Arg	Asn	Gly	Glu	Thr	Phe	Thr	Val	Ile	Ala	Glu	Gly	Glu
			85			90			95					
Tyr	Glu	Ala	Lys	Ala	Ile	Ile	Val	Ala	Thr	Gly	Gly	Lys	His	Glu
			100			105			110					
Ala	Gly	Ile	Glu	Gly	Glu	Ser	Ala	Phe	Ile	Gly	Arg	Gly	Val	Ser
			115			120			125					
Cys	Ala	Thr	Cys	Asp	Gly	Asn	Phe	Phe	Arg	Gly	Lys	Lys	Val	Ile
			130			135			140					
Tyr	Gly	Ser	Gly	Lys	Glu	Ala	Ile	Glu	Asp	Ala	Ile	Tyr	Leu	His
			145			150			155			160		

Ile	Gly	Cys	Glu	Val	Thr	Ile	Val	Ser	Arg	Thr	Pro	Ser	Phe	Arg	Ala
			165				170						175		
Glu	Lys	Ala	Leu	Val	Glu	Glu	Val	Glu	Lys	Arg	Gly	Ile	Pro	Val	His
			180				185					190			
Tyr	Ser	Thr	Thr	Ile	Arg	Lys	Ile	Ile	Gly	Ser	Gly	Lys	Val	Glu	Lys
			195				200				205				
Val	Val	Ala	Tyr	Asn	Arg	Glu	Lys	Lys	Glu	Glu	Phe	Glu	Ile	Glu	Ala
			210			215			220						
Asp	Gly	Ile	Phe	Val	Ala	Ile	Gly	Met	Arg	Pro	Ala	Thr	Asp	Val	Val
			225			230			235				240		
Ala	Glu	Leu	Gly	Val	Glu	Arg	Asp	Ser	Met	Gly	Tyr	Ile	Lys	Val	Asp
			245			250			255						
Lys	Glu	Gln	Arg	Thr	Asn	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Cys
			260			265			270						
Cys	Asp	Asn	Pro	Leu	Lys	Gln	Val	Val	Thr	Ala	Cys	Gly	Asp	Gly	Ala
			275			280			285						
Val	Ala	Ala	Tyr	Ser	Ala	Tyr	Lys	Tyr	Leu	Thr	Ser				
			290			295			300						

<210> 235
<211> 315
<212> PRT
<213> *Bacillus halodurans*

<400> 235															
Met	Gly	Glu	Glu	Gln	Lys	Val	Tyr	Asp	Val	Val	Ile	Ala	Gly		
											10		15		
Pro	Ala	Gly	Met	Thr	Ala	Ala	Val	Tyr	Thr	Ser	Arg	Ala	Asn	Leu	Ser
											20	25	30		
Thr	Val	Met	Val	Glu	Arg	Gly	Val	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr
											35	40	45		
Glu	Asp	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Asp	His	Ile	Leu	Gly	Pro	Glu
											50	55	60		
Leu	Ser	Thr	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Tyr
											65	70	75	80	
Ala	Tyr	Gly	Asp	Ile	Lys	Glu	Ile	Ile	Asp	Gln	Gly	Asp	Leu	Lys	Leu
											85	90	95		
Val	Lys	Ala	Gly	Asn	Lys	Glu	Tyr	Lys	Ala	Arg	Ala	Val	Ile	Val	Ala
											100	105	110		
Thr	Gly	Ala	Glu	Tyr	Lys	Lys	Leu	Gly	Val	Pro	Gly	Glu	Lys	Glu	Leu
											115	120	125		
Ser	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe
											130	135	140		
Lys	Gly	Lys	Glu	Leu	Val	Val	Val	Gly	Gly	Asp	Ser	Ala	Val	Glu	
											145	150	155	160	
Glu	Ala	Val	Tyr	Leu	Thr	Arg	Phe	Ala	Ser	Lys	Val	Thr	Ile	Ile	His
											165	170	175		
Arg	Arg	Asp	Gln	Leu	Arg	Ala	Gln	Lys	Ile	Leu	Gln	Gln	Arg	Ala	Phe
											180	185	190		
Asp	Asn	Asp	Lys	Ile	Glu	Phe	Ile	Trp	Asp	His	Val	Val	Lys	Gln	Ile
											195	200	205		
Asn	Gly	Thr	Asp	Gly	Lys	Val	Ser	Ser	Val	Thr	Ile	Glu	His	Ala	Lys
											210	215	220		
Thr	Gly	Glu	Gln	Gln	Asp	Phe	Lys	Thr	Asp	Gly	Val	Phe	Ile	Tyr	Ile
											225	230	235	240	
Gly	Met	Leu	Pro	Leu	Asn	Glu	Ala	Val	Lys	Asn	Leu	Asn	Ile	Leu	Asn
											245	250	255		
Asp	Glu	Gly	Tyr	Ile	Val	Thr	Asn	Glu	Glu	Met	Glu	Thr	Ser	Val	Pro
											260	265	270		
Gly	Ile	Phe	Ala	Ala	Gly	Asp	Val	Arg	Glu	Lys	Ser	Leu	Arg	Gln	Ile
											275	280	285		
Val	Thr	Ala	Thr	Gly	Asp	Gly	Ser	Leu	Ala	Ala	Gln	Asn	Val	Gln	His
											290	295	300		
Tyr	Ile	Glu	Glu	Leu	Ala	Glu	Lys	Val	Lys	Asn					
											305	310	315		

<210> 236
<211> 330
<212> PRT
<213> Bacillus halodurans

<400> 236
Met Ser Arg Lys Glu Glu Leu Tyr Asp Ile Thr Ile Ile Gly Gly Gly
1 5 10 15
Pro Thr Gly Leu Phe Ala Ala Phe Tyr Gly Gly Met Arg Gln Ala Lys
20 25 30
Val Lys Ile Ile Glu Ser Met Pro Gln Leu Gly Gly Gln Leu Ala Ala
35 40 45
Leu Tyr Pro Glu Lys Tyr Ile Tyr Asp Val Ala Gly Phe Pro Lys Val
50 55 60
Lys Ala Gln Asp Leu Val Asn Asp Leu Lys Arg Gln Ala Glu Gln Phe
65 70 75 80
Asn Pro Thr Ile Ala Leu Glu Gln Ser Val Gln Asn Val Thr Lys Glu
85 90 95
Thr Asp Asp Thr Phe Thr Ile Lys Thr Asp Lys Glu Thr His Tyr Ser
100 105 110
Lys Ala Ile Ile Ile Thr Ala Gly Ala Gly Ala Phe Gln Pro Arg Arg
115 120 125
Leu Glu Val Glu Gly Ala Lys Gln Tyr Glu Gly Lys Asn Leu Gln Tyr
130 135 140
Phe Val Asn Asp Leu Asn Ala Tyr Ala Gly Lys Asn Val Leu Ile Ser
145 150 155 160
Gly Gly Asp Ser Ala Val Asp Trp Ala Leu Met Leu Glu Pro Val
165 170 175
Ala Lys Asn Val Thr Leu Ile His Arg Arg Asp Lys Phe Arg Ala His
180 185 190
Glu His Ser Val Glu Leu Leu Gln Lys Ser Ser Val Asn Ile Leu Thr
195 200 205
Pro Phe Ala Ile Ser Glu Leu Ser Gly Asp Gly Glu Lys Ile His His
210 215 220
Val Thr Ile Gln Glu Val Lys Gly Asp Ala Val Glu Thr Leu Asp Val
225 230 235 240
Asp Glu Val Ile Val Asn Phe Gly Phe Val Ser Ser Leu Gly Pro Ile
245 250 255
Lys Gly Trp Gly Leu Glu Ile Glu Lys Asn Ser Ile Val Val Asn Thr
260 265 270
Lys Met Glu Thr Asn Ile Pro Gly Ile Tyr Ala Ala Gly Asp Ile Cys
275 280 285
Thr Tyr Pro Gly Lys Val Lys Leu Ile Ala Thr Gly Phe Gly Glu Ala
290 295 300
Pro Thr Ala Val Asn Asn Ala Lys Ala Phe Ile Asp Pro Thr Ala Arg
305 310 315 320
Val Phe Pro Gly His Ser Thr Ser Leu Phe
325 330

<210> 237
<211> 213
<212> PRT
<213> Bacillus halodurans

<400> 237
Met Thr Asn Leu His Tyr Thr Val Lys Ser Leu Met Arg Phe Lys Asp
1 5 10 15
Lys Thr Val Ile Ile Ser Gly Gly Asn Ser Ala Ile Asp Trp Ala
20 25 30
Asn Glu Leu Glu Pro Ile Ala Lys Lys Val Tyr Leu Thr Tyr Arg Lys
35 40 45
Glu Ala Leu Asn Gly His Glu Ala Gln Ile Ser Gln Leu Leu Ser Ser
50 55 60
Ser Ala Thr Cys Leu Phe His Thr Thr Ile Ser Lys Leu Ile Ala Arg
65 70 75 80
Asp Asn Lys Glu Val Ile Glu Gln Val Glu Leu Thr Asp His Gln Thr

85	90	95	
Gly Glu Val Thr Asn Leu Ala Val Asp	Glu Val Ile Ile Asn His Gly		
100	105	110	
Tyr Glu Arg Asp Lys Ser Leu Leu Asp Gln Ser Glu Val Thr Leu Asp			
115	120	125	
Arg Ile Asp Asp Tyr Tyr Ile Ala Gly Thr Pro Thr Ser Ala Thr Ser			
130	135	140	
Val Gly Gly Ile Tyr Ala Ala Gly Asp Val Leu Lys His Glu Gly Lys			
145	150	155	160
Leu His Leu Ile Ala Gly Ala Phe Gln Asp Ala Ala Asn Ala Val Asn			
165	170	175	
Gln Ala Lys Gln Trp Ile Glu Pro Glu Ala His Gln Ser Ala Met Val			
180	185	190	
Ser Ser His Asn His Val Phe Lys Glu Arg Asn Arg Glu Leu Ile Arg			
195	200	205	
Gln Met Leu Lys Asn			
210			

<210> 238
<211> 136
<212> PRT
<213> Bacillus halodurans

<400> 238	10	15	
Met Asn Trp Glu Glu Leu Tyr Asp Val Thr Ile Ile Gly Gly Pro			
1	5		
Ala Gly Leu Phe Ser Ala Phe Tyr Ser Gly Leu Arg Glu Met Lys Thr			
20	25	30	
Lys Val Ile Glu Tyr Gln Pro Met Leu Gly Gly Lys Val His Val Tyr			
35	40	45	
Pro Glu Lys Met Ile Trp Asp Val Gly Gly Leu Thr Pro Ile Leu Gly			
50	55	60	
Glu Lys Leu Ile Glu Gln Leu Val Thr Gln Ala Leu Thr Phe Asn Pro			
65	70	75	80
Thr Val Val Leu Asn Glu Lys Val Thr Ser Ile Ala Gln Glu Glu Ser			
85	90	95	
Gly Trp Phe Val Ile Arg Thr Ala Ser Gly Arg Ala His Leu Thr Lys			
100	105	110	
Thr Val Ile Ile Ala Val Gly Gly Ile Leu Lys Pro Gln Lys Asn			
115	120	125	
Arg Ala Arg Arg Gly Arg Thr Ile			
130	135		

<210> 239
<211> 312
<212> PRT
<213> Campylobacter jejuni

<400> 239	10	15	
Met Leu Asp Val Ala Ile Ile Gly Gly Pro Ala Gly Leu Ser Ala			
1	5		
Gly Leu Tyr Ala Thr Arg Gly Gly Leu Lys Asn Val Val Met Phe Glu			
20	25	30	
Lys Gly Met Pro Gly Gly Gln Ile Thr Ser Ser Ser Glu Ile Glu Asn			
35	40	45	
Tyr Pro Gly Val Ala Gln Val Met Asp Gly Ile Ser Phe Met Ala Pro			
50	55	60	
Trp Ser Glu Gln Cys Met Arg Phe Gly Leu Lys His Glu Met Val Gly			
65	70	75	80
Val Glu Gln Ile Leu Lys Asn Ser Asp Gly Ser Phe Thr Ile Lys Leu			
85	90	95	
Glu Gly Lys Thr Glu Leu Ala Lys Ala Val Ile Val Cys Thr Gly			
100	105	110	
Ser Ala Pro Lys Lys Ala Gly Phe Lys Gly Glu Asp Glu Phe Phe Gly			
115	120	125	

Lys Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn
 130 135 140
 Lys Glu Val Ala Val Leu Gly Gly Asp Thr Ala Leu Glu Glu Ala
 145 150 155 160
 Leu Tyr Leu Ala Asn Ile Cys Ser Lys Ile Tyr Leu Ile His Arg Arg
 165 170 175
 Asp Glu Phe Arg Ala Ala Pro Ser Thr Val Glu Lys Val Lys Lys Asn
 180 185 190
 Glu Lys Ile Glu Leu Ile Thr Ser Ala Ser Val Asp Glu Val Tyr Gly
 195 200 205
 Asp Lys Met Gly Val Ala Gly Val Lys Val Lys Leu Lys Asp Gly Ser
 210 215 220
 Ile Arg Asp Leu Asn Val Pro Gly Ile Phe Thr Phe Val Gly Leu Asn
 225 230 235 240
 Val Arg Asn Glu Ile Leu Lys Gln Asp Asp Ser Lys Phe Leu Cys Asn
 245 250 255
 Met Glu Glu Gly Gly Gln Val Ser Val Asp Leu Lys Met Gln Thr Ser
 260 265 270
 Val Ala Gly Leu Phe Ala Ala Gly Asp Leu Arg Lys Asp Ala Pro Lys
 275 280 285
 Gln Val Ile Cys Ala Ala Gly Asp Gly Ala Val Ala Ala Leu Ser Ala
 290 295 300
 Met Ala Tyr Ile Glu Ser Leu His
 305 310

<210> 240

<211> 348

<212> PRT

<213> Caulobacter crescentus

<400> 240

Met Ser Pro Leu Arg Arg Ile His Thr Ile Ser Pro Pro Met Ser Thr
 1 5 10 15
 Leu Ser Pro Arg Gln Thr Arg Cys Leu Ile Ile Gly Ser Gly Pro Ala
 20 25 30
 Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Leu Leu Lys Pro Val
 35 40 45
 Leu Ile Ala Gly Ile Gln Pro Gly Gly Gln Leu Thr Ile Thr Thr Asp
 50 55 60
 Val Glu Asn Tyr Pro Gly Phe Ala Asp Val Ile Gln Gly Pro Trp Leu
 65 70 75 80
 Met Asp Gln Met Arg Ala Gln Ala Glu His Val Gly Thr Glu Phe Val
 85 90 95
 Ser Asp Ile Val Thr Ser Val Asp Leu Ser Lys Arg Pro Phe Thr Val
 100 105 110
 Lys Thr Asp Ser Gly Gln Asp Trp Ile Ala Glu Thr Ile Ile Ile Ala
 115 120 125
 Thr Gly Ala Gln Ala Lys Trp Leu Gly Leu Glu Ser Glu Ala Lys Phe
 130 135 140
 Gln Gly Phe Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 145 150 155 160
 Arg Asn Lys Asp Val Ile Val Val Gly Gly Asn Thr Ala Val Glu
 165 170 175
 Glu Ala Leu Phe Leu Thr Ser Phe Ala Ser Lys Val Thr Leu Val His
 180 185 190
 Arg Lys Asp Glu Leu Arg Ala Glu Lys Ile Leu Gln Glu Arg Leu Leu
 195 200 205
 Ala His Pro Lys Ile Glu Val Ile Trp Asp Ser Val Ile Asp Glu Val
 210 215 220
 Leu Gly Gln Thr Asp Pro Met Gly Val Thr Gly Ala Arg Leu Lys Asn
 225 230 235 240
 Val Lys Thr Gly Glu Thr Gln Glu Val Ala Ala Asp Gly Val Phe Ile
 245 250 255
 Ala Ile Gly His Ala Pro Ser Ser Glu Leu Phe Ala Gly Gln Leu Glu
 260 265 270
 Thr Gly Ser Gly Gly Tyr Leu Lys Val Lys Pro Gly Thr Ala Ser Thr

275	280	285
Ala Ile Glu Gly Val Tyr Ala Ala Gly Asp Val Thr Asp Asp Val Tyr		
290	295	300
Arg Gln Ala Val Thr Ala Ala Gly Met Gly Cys Met Ala Ala Leu Glu		
305	310	315
Ala Val Arg Phe Leu Ala Glu Glu Asp His Lys Ala Ala His His Pro		320
325	330	335
Ile Ser His Ala Glu Ala Asn Lys Ile Gly Val Trp		
340	345	

<210> 241
<211> 285
<212> PRT
<213> Clostridium acetobutylicum

<400> 241	241	
Met Glu Arg Tyr Asp Ile Ala Ile Ile Gly Ser Gly Pro Ala Gly Leu		
1	5	10
Ala Ser Ala Ile Asn Ala Lys Thr Arg Asn Lys Ser Val Ile Val Phe		15
20	25	30
Gly Ser Ser Asp Leu Ser Lys Lys Leu Thr Leu Ala Pro Val Ile Asn		
35	40	45
Asn Tyr Leu Gly Phe Tyr Gly Ile Arg Gly Ala Glu Leu Gln Glu Lys		
50	55	60
Phe Lys Glu His Ile Asp Asn Met Gly Ile Gln Ile Glu Asn Val Lys		
65	70	75
Val Asn Asn Ile Tyr Ala Met Gly Glu Tyr Phe Ser Ile Met Thr Ser		80
85	90	95
Lys Asp Thr Tyr Glu Ala Ser Lys Val Ile Leu Ala Met Gly Met Glu		
100	105	110
His Thr Lys Pro Leu Lys Gly Glu Asp Lys Phe Leu Gly Arg Gly Val		
115	120	125
Gly Tyr Cys Ala Thr Cys Asp Ala Pro Leu Tyr Lys Gly Lys Ile Val		
130	135	140
Thr Ile Val Gly Tyr Asn Lys Glu Ala Glu Ser Glu Ala Asn Tyr Leu		
145	150	155
Ala Glu Leu Ala Ser Lys Val Tyr Tyr Val Pro Arg Tyr Lys Asp Glu		160
165	170	175
Tyr Gln Leu Val Ser Ala Val Glu Ile Val Lys Asp Val Pro Val Glu		
180	185	190
Ile Val Gly Asp Lys Lys Val Glu Lys Leu Lys Leu Lys Ser Arg Glu		
195	200	205
Leu Glu Thr Asp Gly Val Phe Val Leu Lys Asp Ser Ala Pro Pro Glu		
210	215	220
Gln Leu Val Pro Gly Leu Tyr Val Glu Asp Gly His Ile Lys Val Asn		
225	230	235
Arg Lys Met Glu Thr Asn Ile Asp Gly Cys Tyr Ala Ala Gly Asp Cys		240
245	250	255
Thr Gly Lys Pro Tyr Gln Tyr Met Lys Ala Val Gly Glu Gly Gln Val		
260	265	270
Ala Ala Leu Asn Ala Val Glu Lys Leu Tyr Thr Lys Ala		
275	280	285

<210> 242
<211> 291
<212> PRT
<213> Clostridium acetobutylicum

<400> 242	242	
Met Asp Arg Tyr Asp Ile Ala Ile Ile Gly Ser Gly Pro Ala Gly Leu		
1	5	10
Ser Ala Ala Ile Asn Ala Val Ile Arg Asn Lys Lys Val Ile Leu Phe		15
20	25	30
Gly Ser Asp Asn Leu Ser Asn Lys Leu Leu Lys Ala Pro Lys Ile Asn		
35	40	45

Asn Tyr Leu Gly Ile Tyr Asp Val Ser Gly Lys Glu Leu Lys Glu Lys
 50 55 60
 Phe Leu Glu His Leu Lys Tyr Met Asn Ile Glu Ile Lys Asn Glu Lys
 65 70 75 80
 Val Asn Ser Val Tyr Ser Met Gly Asp Tyr Phe Ala Leu Ser Leu Asn
 85 90 95
 Gln Lys Met Tyr Glu Ala Thr Ser Ile Ile Ala Ser Gly Val Glu
 100 105 110
 Phe Ser Lys Pro Leu Asn Gly Glu Asp Glu Leu Leu Gly Lys Gly Val
 115 120 125
 Gly Tyr Cys Ala Thr Cys Asp Ala Pro Leu Tyr Lys Gly Lys Thr Val
 130 135 140
 Ala Ile Val Gly Tyr Thr Lys Glu Ala Glu Glu Ala Asn Tyr Val
 145 150 155 160
 Ser Glu Leu Ala Gly Lys Leu Tyr Tyr Ile Pro Met Tyr Lys Asp Lys
 165 170 175
 Val Ser Leu Lys Glu Val Ile Glu Val Val Glu Asp Lys Pro Ile Ser
 180 185 190
 Ile Leu Gly Lys Asp Lys Val Ser Gly Leu Gln Met Ser Lys Gly Glu
 195 200 205
 Ile Asn Thr Asp Ala Val Phe Ile Ile Lys Asp Ser Val Ser Pro Gly
 210 215 220
 Lys Leu Val Pro Gly Leu Leu Met Asn Gly Glu His Ile Ala Val Asp
 225 230 235 240
 Ile Asp Met Lys Thr Asn Ile Glu Gly Cys Phe Ala Ala Gly Asp Cys
 245 250 255
 Ala Gly Arg Pro Tyr Gln Tyr Ile Lys Ser Ala Gly Gln Gln Ile
 260 265 270
 Ala Ala Leu Ser Ala Val Ser Tyr Ile Asp Lys Ile Lys Leu Asn Lys
 275 280 285
 Lys Ile Ile
 290

<210> 243
 <211> 314
 <212> PRT
 <213> Clostridium sticklandii

<400> 243
 Met Ser Lys Ile Tyr Asp Leu Val Ile Ile Gly Ala Gly Pro Ala Gly
 1 5 10 15
 Leu Ser Ala Gly Leu Tyr Gly Ala Arg Gly Lys Met Ser Thr Leu Ile
 20 25 30
 Ile Glu Lys Asp Lys Thr Gly Gly Gln Ile Val Thr Thr Glu Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Ile His Asp Ala Ser Gly Pro Ser Leu Ile
 50 55 60
 Ala Arg Met Ala Glu Gln Ala Asp Glu Phe Gly Thr Glu Arg Ile Lys
 65 70 75 80
 Asp Ser Ile Val Asp Phe Asp Phe Thr Gly Lys Ile Lys Ile Leu Lys
 85 90 95
 Gly Thr Lys Ala Glu Tyr Gln Ala Lys Ala Val Ile Val Ala Thr Gly
 100 105 110
 Ala Ser Pro Lys Lys Leu Asp Cys Pro Gly Glu Lys Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Gln Asp
 130 135 140
 Met Glu Val Phe Val Val Gly Gly Asp Ser Ala Val Glu Glu Ala
 145 150 155 160
 Met Tyr Leu Thr Lys Phe Ala Ser Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Ser Leu Arg Ala Ala Lys Ser Ile Gln Asp Lys Ala Phe Ala Asn
 180 185 190
 Pro Lys Ile Asp Phe Lys Trp Asp Ser Val Ile Lys Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Val Val Phe Glu Asn Thr Lys Thr Gly Glu

210	215	220
Leu Ser Glu His Phe Ala Asp Glu Glu Phe Gly Thr Phe Gly Ile Phe		
225	230	235
Val Phe Thr Gly Tyr Ile Pro Gln Thr Asp Ile Phe Lys Asp Lys Val		240
245	250	255
Asp Met Asn Gln Ser Gly Tyr Phe Val Thr Asn Gln Asn Met Glu Thr		
260	265	270
Asn Ile Pro Gly Val Phe Ala Ala Gly Asp Cys Arg Glu Lys Val Leu		
275	280	285
Arg Gln Val Val Thr Ala Thr Ala Asp Gly Ala Ile Ala Ala Ile Met		
290	295	300
Ala Glu Lys Tyr Ile Glu His Glu Gly Leu		
305	310	

<210> 244

<211> 325

<212> PRT

<213> Deinococcus radiodurans

<400> 244

Met Thr Ala Pro Thr Ala His Asp Tyr Asp Val Val Ile Ile Gly Gly		
1	5	10
Gly Pro Ala Gly Leu Thr Ala Ala Ile Tyr Thr Gly Arg Ala Gln Leu		
20	25	30
Ser Thr Leu Ile Leu Glu Lys Gly Met Pro Gly Gly Gln Ile Ala Trp		
35	40	45
Ser Glu Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Pro Ile Ala Gly		
50	55	60
Met Glu Leu Ala Gln Arg Met His Gln Gln Ala Glu Lys Phe Gly Ala		
65	70	75
Lys Val Glu Met Asp Glu Val Gln Gly Val Gln His Asp Ala Thr Ser		
85	90	95
His Pro Tyr Pro Phe Thr Val Arg Gly Tyr Asn Gly Glu Tyr Arg Ala		
100	105	110
Lys Ala Val Ile Leu Ala Thr Gly Ala Asp Pro Arg Lys Leu Gly Ile		
115	120	125
Pro Gly Glu Asp Asn Phe Trp Gly Lys Gly Val Ser Thr Cys Ala Thr		
130	135	140
Cys Asp Gly Phe Phe Tyr Lys Gly Lys Lys Val Val Val Ile Gly Gly		
145	150	155
Gly Asp Ala Ala Val Glu Glu Gly Met Phe Leu Thr Lys Phe Ala Asp		
165	170	175
Glu Val Thr Val Ile His Arg Arg Asp Thr Leu Arg Ala Asn Lys Val		
180	185	190
Ala Gln Ala Arg Ala Phe Ala Asn Pro Lys Met Lys Phe Ile Trp Asp		
195	200	205
Thr Ala Val Glu Glu Ile Gln Gly Ala Asp Ser Val Ser Gly Val Lys		
210	215	220
Leu Arg Asn Leu Lys Thr Gly Glu Val Ser Glu Leu Ala Thr Asp Gly		
225	230	235
Val Phe Ile Phe Ile Gly His Val Pro Asn Thr Ala Phe Val Lys Asp		
245	250	255
Thr Val Ser Leu Arg Asp Asp Gly Tyr Val Asp Val Arg Asp Glu Ile		
260	265	270
Tyr Thr Asn Ile Pro Met Leu Phe Ala Ala Gly Asp Val Ser Asp Tyr		
275	280	285
Ile Tyr Arg Gln Leu Ala Thr Ser Val Gly Ala Gly Thr Arg Ala Ala		
290	295	300
Met Met Thr Glu Arg Gln Leu Ala Ala Leu Glu Val Glu Gly Glu Glu		
305	310	315
Val Thr Ala Ala Asp		
325		

<210> 245

<211> 61

<212> PRT
<213> Enterococcus faecalis

<220>
<221> VARIANT
<222> 33, 45, 46
<223> Xaa = Any Amino Acid

<400> 245
Met Met Asp Thr Leu Ile Ile Glu Lys Asp Lys Ile Gly Gly Gln Val
1 5 10 15
Thr Thr Thr Ser Glu Ile Val Asn Tyr Pro Ala Ile Arg His Thr Thr
20 25 30
Xaa Pro Glu Leu Met Gly Glu Met Arg Ile Gln Ala Xaa Xaa Phe Gly
35 40 45
Val Ala Phe Thr Lys Asp Glu Ile Ile Asp Val Asp Phe
50 55 60

<210> 246
<211> 205
<212> PRT
<213> Halobacterium sp

<400> 246
Met Thr Glu Asp Ser His Asp Leu Val Ile Ala Gly Ser Gly Ile Ala
1 5 10 15
Gly Leu Ser Ala Ala Val Tyr Ala Ala Arg Ala Asp Leu Glu Pro Leu
20 25 30
Val Leu Glu Gly Asp Glu Pro Gly Gly Gln Leu Thr Leu Thr Thr Asp
35 40 45
Val Glu Asn Tyr Leu Gly Phe Pro Asp Gly Val Gly Gly Met Asp Leu
50 55 60
Val Gln Arg Gly Lys Glu Gln Ala Glu Gln Phe Gly Ala Gln Phe Glu
65 70 75 80
His Gly Arg Ile Glu Ala Ala Asp Leu Asp Gly Gln Pro Leu Glu Leu
85 90 95
Ser Leu Ser Thr Gly Asp Thr Leu Tyr Thr Arg Ser Leu Ile Val Ala
100 105 110
Thr Gly Ala Ser Ala Arg Trp Val Gly Ala Glu Asn Glu Asp Glu Leu
115 120 125
Met Gly Ala Gly Leu Ser Thr Cys Ala Thr Cys Asp Gly Ala Phe His
130 135 140
Arg Gly Asp Asp Val Leu Val Val Gly Gly Asp Ser Ala Met Glu
145 150 155 160
Glu Ala Leu Phe Leu Ala Lys Phe Ala Asp Ser Val Thr Val Val His
165 170 175
Arg Arg Glu Glu Leu Arg Ala Ser Glu Ile Met Ala Asp Arg Ala Arg
180 185 190
Asp His Asp Asp Val Gln Phe Arg Trp Asn Thr Glu Leu
195 200 205

<210> 247
<211> 362
<212> PRT
<213> Halobacterium sp

<400> 247
Met Thr Glu Ala Thr Ala Asp Arg Thr Ala Leu Thr Asp Gly Gly Arg
1 5 10 15
Asp Val Val Glu His Arg Gln Leu Val Ile Val Gly Ser Gly Ile Ala
20 25 30
Ala Leu Ser Ala Ala Thr Tyr Ala Ala Arg Ser Asn Asn Asp Pro Leu
35 40 45
Leu Phe Glu Gly Asp Glu Pro Gly Gly Gln Leu Thr Leu Thr Ser Glu
50 55 60

Val Glu Asn Tyr Pro Gly Phe Pro Glu Gly Ile Ala Gly Ala Glu Leu
 65 70 75 80
 Ile Gln Glu Met Lys Thr Gln Ala Thr Arg Phe Gly Ala Glu Val Glu
 85 90 95
 His Gly Ile Val Glu Ser Val Asp Asp Ser Gly Arg Pro Phe Arg Leu
 100 105 110
 Thr Leu Thr Asn Gly Asp Val Tyr Thr Ala Asp Ala Val Ile Val Ala
 115 120 125
 Ser Gly Ala Ser Ala Arg Thr Leu Gly Ile Pro Gly Glu Asp Glu Leu
 130 135 140
 Met Gly Gln Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Ala Phe Phe
 145 150 155 160
 Arg Gly Glu Asp Met Ile Val Val Gly Gly Asp Ala Ala Ala Glu
 165 170 175
 Glu Ala Ser Phe Leu Thr Lys Phe Ala Asp Thr Val Tyr Leu Val His
 180 185 190
 Arg Arg Asp Glu Leu Arg Ala Glu Asp Tyr Trp Ala Asp Arg Ile Arg
 195 200 205
 Glu His Val Ala Asp Gly Asp Ile Glu Val Leu Trp Asn Thr Glu Ala
 210 215 220
 Val Glu Val His Gly Ser Pro Glu Glu Gly Val Thr Gly Ala Ser Leu
 225 230 235 240
 Val Arg His Pro Glu Gly His Pro Thr Ala Lys Leu Asp Ala Asp Glu
 245 250 255
 Thr Glu Gln Leu Glu Leu Asp Ile Gly Ala Phe Phe Ile Ala Ile Gly
 260 265 270
 His Thr Pro Asn Thr Ser Phe Leu Ala Asp Thr Gly Val Val Cys Asp
 275 280 285
 Asp Ala Gly Tyr Val Gln Thr Val Gly Gly Ala Gly Gly Gln Thr
 290 295 300
 Lys Thr Asp Val Thr Gly Val Phe Gly Ala Gly Asp Val Val Asp Tyr
 305 310 315 320
 His Tyr Gln Gln Ala Val Thr Ala Ala Gly Met Gly Ser Lys Ala Ala
 325 330 335
 Ile Asp Ala Asp Glu Tyr Leu Glu Ser Val Ala Asp Gly Val Thr Gly
 340 345 350
 Glu Thr Ala Asp Ala Thr Pro Ala Asp Asp
 355 360

<210> 248
 <211> 294
 <212> PRT
 <213> Halobacterium

<400> 248
 Met Pro Thr Gln Asp Gly Glu Arg Arg Asp Val Val Ile Val Gly Gly
 1 5 10 15
 Gly Pro Ala Gly Cys Ala Ala Gly Val Phe Thr Ala Arg Tyr Gly Leu
 20 25 30
 Asp Thr Val Val Phe Asp Arg Gly Asn Ala Ala Leu Pro Arg Cys Ala
 35 40 45
 Phe Val Glu Asn Tyr Pro Gly Phe Pro Gly Gly Ile Asp Val Pro Thr
 50 55 60
 Leu Arg Gly Leu Phe His Asp His Ala Glu Thr Ala Gly Cys Asp Leu
 65 70 75 80
 Ile Ala Asp Thr Val Glu Ser Val Asp Arg Pro Ser Asp Asp Thr
 85 90 95
 Gly Phe Val Val Glu Thr Gln Asp Gly Arg Arg Val Tyr Thr Asp Thr
 100 105 110
 Val Leu Ala Ala Ala Trp Tyr Asp Gly Ser Tyr Leu Arg Pro Val Val
 115 120 125
 Gly Asp Ser Ala Phe Glu Thr His Asp His His Gly Glu Ser Arg Glu
 130 135 140
 Arg Phe Asp Asp Ala Tyr Ala Asp Ala Asp Gly Arg Thr Pro Val Asp
 145 150 155 160
 Gly Leu Tyr Val Ala Ser Pro Gly Gly Gln Arg Ser Ala Gln Ala Val

165	170	175	
Ile Ala Ala Gly Asn Gly Ala His Val Ala Arg Cys Leu Leu Ala Asp			
180	185	190	
Arg Lys Arg Ala Arg Gly Tyr Pro Glu Gly Val Ala Pro His Tyr Asp			
195	200	205	
Trp Lys Arg Arg Glu Ser Asp Leu Ser Gly Glu Trp Ala Asp Arg Asp			
210	215	220	
Arg Trp Arg Glu Trp Phe Ala Ala Glu Ala Gly Asp Asp His Asp Leu			
225	230	235	240
Asp Asp Asp Glu Phe Ala Ala Leu Arg Ala Ala His Leu Asp Arg Thr			
245	250	255	
Phe Asp Ala Thr Leu Ser Ala Asp Ala Ile Glu Glu Arg Ala Glu Ala			
260	265	270	
Gly Ala His Arg Leu Leu Asp His Ile Asp Asp Asp His Ile Glu Ser			
275	280	285	
Tyr Arg Glu Gln Arg Asp			
290			

<210> 249
<211> 324
<212> PRT
<213> Helicobacter pylori

<400> 249	15		
Met Asn Gln Glu Ile Leu Asp Val Leu Ile Val Gly Ala Gly Pro Gly			
1	5	10	
Gly Ile Ala Thr Ala Val Glu Cys Glu Ile Ala Gly Val Lys Lys Val			
20	25	30	
Leu Leu Cys Glu Lys Thr Glu Ser His Ser Gly Met Leu Glu Lys Phe			
35	40	45	
Tyr Lys Ala Gly Lys Arg Ile Asp Lys Asp Tyr Lys Lys Gln Val Val			
50	55	60	
Glu Leu Lys Gly His Ile Pro Phe Lys Asp Ser Phe Lys Glu Glu Thr			
65	70	75	80
Leu Glu Asn Phe Thr Asn Leu Leu Lys Glu His His Ile Thr Pro Ser			
85	90	95	
Tyr Lys Thr Asp Ile Glu Ser Val Lys Lys Glu Gly Glu Tyr Phe Lys			
100	105	110	
Ile Thr Thr Ser Asn Thr Thr Tyr His Ala Lys Phe Val Val Val			
115	120	125	
Ala Ile Gly Lys Met Gly Gln Pro Asn Arg Pro Thr Ala Tyr Lys Ile			
130	135	140	
Pro Val Ala Leu Ser Lys Gln Val Val Phe Ser Ile Asn Asp Cys Lys			
145	150	155	160
Glu Asn Glu Lys Thr Leu Val Ile Gly Gly Asn Ser Ala Val Glu			
165	170	175	
Tyr Ala Ile Ala Leu Cys Lys Thr Thr Pro Thr Thr Leu Asn Tyr Arg			
180	185	190	
Lys Lys Glu Phe Ser Arg Ile Asn Glu Asp Asn Ala Lys Asn Leu Gln			
195	200	205	
Glu Val Leu Asn Asn Asn Thr Leu Lys Ser Lys Leu Gly Val Asp Ile			
210	215	220	
Glu Ser Leu Glu Glu Asp Asn Thr Gln Ile Lys Val Asn Phe Thr Asp			
225	230	235	240
Asn Thr Ser Glu Ser Phe Asp Arg Leu Leu Tyr Ala Ile Gly Gly Ser			
245	250	255	
Thr Pro Leu Glu Phe Phe Lys Arg Cys Ser Leu Glu Leu Asp Pro Ser			
260	265	270	
Thr Asn Ile Pro Val Val Lys Glu Asn Leu Glu Ser Asn Asn Ile Pro			
275	280	285	
Asn Leu Phe Ile Val Gly Asp Ile Leu Phe Lys Ser Gly Ala Ser Ile			
290	295	300	
Ala Thr Ala Leu Asn His Gly Tyr Asp Val Ala Ile Glu Ile Ala Lys			
305	310	315	320
Arg Leu His Ser			

<210> 250
<211> 128
<212> PRT
<213> Klebsiella oxytoca

<400> 250
Met Gly Thr Ala Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
1 5 10 15
Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro
20 25 30
Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr Thr
35 40 45
Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu
50 55 60
Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile
65 70 75 80
Ile Phe Asp His Ile Asn Ser Val Asp Leu Gln Asn Arg Pro Phe Arg
85 90 95
Leu Val Gly Asp Ser Gly Glu Tyr Thr Cys Asp Ala Pro Asp Tyr Arg
100 105 110
Tyr Arg Arg Ile Ser Ala Leu Ser Gly Ser Ala Ile Gly Arg Arg Val
115 120 125

<210> 251
<211> 79
<212> PRT
<213> Lactococcus lactis

<400> 251
Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
1 5 10 15
Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
20 25 30
Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn Leu Tyr Pro Glu
35 40 45
Lys Leu Ile Tyr Asp Ile Ala Gly Leu Pro Ala Val Thr Gly Ala Asp
50 55 60
Leu Thr Lys Asn Leu Leu Glu Gln Leu Ala Gln Ile Ser His Arg
65 70 75

<210> 252
<211> 321
<212> PRT
<213> Lactococcus lactis

<400> 252
Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
1 5 10 15
Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
20 25 30
Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn Leu Tyr Pro Glu
35 40 45
Lys Leu Ile Tyr Asp Ile Ala Gly Leu Pro Ala Val Thr Gly Ala Asp
50 55 60
Leu Thr Lys Asn Leu Leu Glu Gln Leu Ala Gln Ile Ser His Arg Leu
65 70 75 80
Phe Leu Gly Glu Ser Val Gln Lys Ile Glu Lys Glu Glu Gly Ile Phe
85 90 95
Ser Val Thr Thr Asp Lys Ser Thr Arg Arg Ala Lys Gly Val Leu Leu
100 105 110
Thr Thr Gly Ala Gly Leu Leu Lys Pro Arg Lys Leu Gly Ile Asp Asn
115 120 125
Glu Glu Thr Leu Ala Asn Glu Gly Lys Ile Ser Tyr Phe Ile Thr Ser
130 135 140

Leu Lys Glu Phe Glu Gly Lys Asn Val Ala Val Phe Gly Gly Gly Asp
 145 150 155 160
 Ser Ala Leu Asp Trp Ser Leu Met Leu Glu Lys Val Ala Lys Asn Val
 165 170 175
 His Leu Val His Arg Arg Thr Ala Phe Arg Gly His Glu Ile Thr Val
 180 185 190
 Asp Arg Val Met Asn Ser Asn Val Gln Val His Thr Pro Tyr Thr Phe
 195 200 205
 Ser Asn Leu Ile Glu Asn Glu Leu Glu Leu Lys Lys Ile Lys Ser Glu
 210 215 220
 Glu Ser Leu Asn Phe Ser Ile Asp Lys Ile Leu Val Asn Tyr Gly Phe
 225 230 235 240
 Leu Thr Asn Gln Val Thr Leu Ala Glu Asn Leu Glu Val Ser Arg Asn
 245 250 255
 Gly Arg Val Lys Ala Asp Ser Met Met Gln Ser Asn Ile Glu Gly Leu
 260 265 270
 Tyr Val Ala Gly Asp Ala Ser Asp Tyr Pro Gly Lys Met Pro Leu Met
 275 280 285
 Ser Val Gly Phe Gly Glu Ala Val His Ala Ile Asn Ala Met Thr Lys
 290 295 300
 Lys Leu Glu Phe Asp His Pro Leu Arg Gly Gly His Ser Ser Ser Ile
 305 310 315 320
 Phe

<210> 253
 <211> 308
 <212> PRT
 <213> Lactococcus lactis

<400> 253
 Met Thr Glu Lys Lys Tyr Asp Val Val Ile Ile Gly Ser Gly Pro Ala
 1 5 10 15
 Gly Met Thr Ala Ala Met Tyr Thr Ala Arg Ser Glu Met Lys Thr Leu
 20 25 30
 Leu Leu Glu Arg Gly Val Pro Gly Gly Gln Met Asn Asn Thr Ala Glu
 35 40 45
 Ile Glu Asn Tyr Pro Gly Tyr Glu Thr Ile Met Gly Pro Glu Leu Ser
 50 55 60
 Met Lys Met Ala Glu Pro Leu Glu Gly Leu Gly Val Glu Asn Ala Tyr
 65 70 75 80
 Gly Phe Val Thr Ala Ile Glu Asp His Gly Asp Tyr Lys Lys Ile Ile
 85 90 95
 Thr Glu Asp Asp Glu Phe Val Thr Lys Ser Ile Ile Ala Thr Gly
 100 105 110
 Ala Asn His Arg Lys Leu Glu Ile Pro Gly Glu Glu Tyr Gly Ala
 115 120 125
 Arg Gly Val Ser Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe Arg Asn
 130 135 140
 Gln Glu Ile Leu Val Ile Gly Gly Asp Ser Ala Val Glu Glu Ala
 145 150 155 160
 Leu Tyr Leu Thr Arg Phe Gly Gln Ser Val Thr Ile Met His Arg Arg
 165 170 175
 Asp Lys Leu Arg Ala Gln Glu Ile Ile Gln Gln Arg Ala Phe Lys Glu
 180 185 190
 Glu Lys Ile Asn Phe Ile Trp Asp Ser Val Pro Met Glu Ile Lys Gly
 195 200 205
 Asp Asp Lys Lys Val Gln Ser Val Val Tyr Lys Asn Val Lys Thr Gly
 210 215 220
 Glu Val Thr Glu Lys Ala Phe Gly Gly Ile Phe Ile Tyr Val Gly Leu
 225 230 235 240
 Asp Pro Val Ala Glu Phe Ala Gly Asn Leu Gly Ile Thr Asp Glu Ala
 245 250 255
 Gly Trp Ile Ile Thr Asp Asp His Met Arg Thr Ser Leu Pro Gly Ile
 260 265 270
 Phe Ala Val Gly Asp Val Arg Gln Lys Asp Phe Arg Gln Ile Thr Thr

275	280	285
Ala Ile Gly Asp Gly Ala Gln Ala Ala Gln Glu Ala		Tyr Lys Phe Val
290	295	300
Ala Glu Leu Asp		
305		

<210> 254
<211> 44
<212> PRT
<213> Lactococcus lactis

<400> 254
Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
1 5 10 15
Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
20 25 30
Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn
35 40

<210> 255
<211> 339
<212> PRT
<213> Listeria monocytogenes

<400> 255
Glu Phe Tyr Ser Tyr Lys Lys Glu Ile Asn Arg Tyr Leu Ala Glu Glu
1 5 10 15
Asp Ser Ala Ser Ala Cys Asp Ile Leu Arg Lys Val Ile Asp Glu Lys
20 25 30
Pro Asn Phe Trp Pro Ala Tyr Asn Gln Leu Ala Ser Leu Tyr Phe Glu
35 40 45
Gln Leu Lys Glu Glu Gly Val Arg Val Leu Ser Asp Leu Leu Ser
50 55 60
Arg Asn Pro Gly Asn Leu Leu Gly Ile Cys Asp Leu Phe Ile Tyr His
65 70 75 80
Phe Tyr Lys Gly Asn Arg Lys Glu Ala Asp Glu Leu Tyr Leu Glu Leu
85 90 95
Arg Asp Val Leu Pro Val Leu Ala His His Lys Glu Lys Leu Gly Leu
100 105 110
Ile His Ala Met Met Gly Glu Tyr Glu Glu Ala Asp Asp Leu Leu Glu
115 120 125
Gln Val Ala Asp Leu Glu Val Thr Glu Arg Ser Lys Tyr Tyr Tyr Phe
130 135 140
Arg Ala Lys Ser Ser Tyr Tyr Leu Gly Asp Val Glu Gly Ala Lys Met
145 150 155 160
Phe Trp His Ser Phe Leu Glu Cys Asp Leu Tyr Glu Asp Val Arg Phe
165 170 175
Pro Trp Glu Gln Glu Pro Asp Leu Thr Asn Asp Thr Arg Leu Val Leu
180 185 190
Glu Met Leu Gln Glu Glu Asp Asp Leu Thr His Met Leu Gly Val Tyr
195 200 205
Ala Leu Thr Ile Ser Gly Asn Arg Pro Glu Leu Val Leu Phe His Pro
210 215 220
Leu Leu Asp Met Ser Asp Trp Ser Tyr Met Glu His Leu Met Phe Thr
225 230 235 240
Asn Phe Asp Tyr Phe Pro Asp Gly Ala Ile Glu Gln Asn Gly Tyr Leu
245 250 255
Ile Ala Lys Ala Met Ile Ile Leu Lys Glu Asn Gly Ile Leu Leu Asn
260 265 270
Glu Glu Tyr Met Ala Leu Tyr Lys Gln Met Phe Ser Leu Val Leu Ile
275 280 285
Asp Ala Gly Lys Asp Leu Ile Leu Gly Arg Tyr Thr Ile Glu Thr Val
290 295 300
Ala Ser Ala Ile Ala Lys Leu Phe Leu Pro His Leu Lys Leu Gln Leu
305 310 315 320

Val Glu Glu Phe Glu Cys Ser Lys Cys Ala Arg Asp Ile Glu Arg Val
325 330 335

Leu Ser Arg

<210> 256

<211> 303

<212> PRT

<213> Methanothermobacter thermautotrophicus

<400> 256

Met Met Thr Asp Tyr Asp Met Ile Val Ile Gly Ala Gly Pro Ala Gly
1 5 10 15
Leu Thr Ala Gly Ile Tyr Gly Gly Arg Gln Gly Ser Ser Val Leu Met
20 25 30
Leu Asp Lys Gly Pro Ala Gly Gly Leu Gly Leu Glu Val Pro Met Met
35 40 45
Glu Asn Tyr Pro Gly Phe Glu Met Ile Ala Gly Met Ser Leu Val Thr
50 55 60
Lys Met Lys Lys Gln Ala Thr Ala Val Ala Glu Leu Arg Glu Met Glu
65 70 75 80
Glu Val Lys Glu Ile Glu Lys Gly Asp Val Phe Thr Val Lys Thr Ser
85 90 95
Arg Asp Thr Tyr Thr Ala Ser Ala Ile Ile Phe Ala Thr Gly Ser Lys
100 105 110
His Arg Gln Leu Gly Val Pro Gly Glu Asn Asp Leu Leu Gly Arg Gly
115 120 125
Val Cys Tyr Cys Ala Thr Cys Asp Gly Pro Leu Tyr Lys Gly Arg Lys
130 135 140
Val Leu Met Val Gly Gly Asn Ser Ala Ala Gln Glu Ala Val Phe
145 150 155 160
Leu Lys Asn Ile Gly Cys Asp Val Ser Ile Val His Arg Arg Asp Glu
165 170 175
Leu Arg Ala Asp Lys Tyr Leu Gln Asp Lys Leu Arg Glu Met Glu Ile
180 185 190
Pro Val Ile Trp Asn Ser Val Val Lys Glu Ile Gly Gly Asp Glu Arg
195 200 205
Val Glu Glu Val Ile Ile His Asn Arg Val Thr Gly Arg Asp Glu Thr
210 215 220
Leu Lys Val Asp Gly Val Phe Ile Ala Ile Gly Glu Glu Pro Leu Asn
225 230 235 240
Gln Leu Ala Val Asp Leu Gly Val Glu Val Asp Lys Gly Gly Tyr Ile
245 250 255
Ile Thr Asp Phe Gln Arg Thr Asn Val Pro Leu Val Tyr Ala Ala
260 265 270
Gly Asp Ile Thr Gly Gly Leu Asn Gln Trp Val Thr Ala Cys Ala Glu
275 280 285
Gly Ala Ile Ala Ala Thr Tyr Ala Tyr Arg Glu Ile Gln Ser Tyr
290 295 300

<210> 257

<211> 179

<212> PRT

<213> Bacillus subtilis

<400> 257

Met Val Ile Ser Gly Gly Asp Thr Ala Val Asp Trp Ala Asn Glu
1 5 10 15
Leu Glu Pro Ile Ala Ala Ser Val Thr Val Val His Arg Arg Glu Glu
20 25 30
Phe Gly Gly Met Glu Ser Ser Val Thr Lys Met Lys Gln Ser Ser Val
35 40 45
Arg Val Leu Thr Pro Tyr Arg Leu Glu Gln Leu Asn Gly Asp Glu Glu
50 55 60
Gly Ile Lys Ser Val Thr Val Cys His Thr Glu Ser Gly Gln Arg Lys

65	70	75	80
Asp Ile Glu Ile Asp	Glu Leu Ile Asn His	Gly Phe Lys Ile Asp	
85	90	95	
Leu Gly Pro Met Met Glu Trp Gly Leu	Glu Ile Glu Glu Gly Arg Val		
100	105	110	
Lys Ala Asp Arg His Met Arg Thr Asn Leu Pro	Gly Val Phe Val Ala		
115	120	125	
Gly Asp Ala Ala Phe Tyr Glu Ser Lys Leu Arg	Leu Ile Ala Gly Gly		
130	135	140	
Phe Thr Glu Gly Pro Thr Ala Val Asn Ser Ala	Lys Ala Tyr Leu Asp		
145	150	155	160
Pro Lys Ala Glu Asn Met Ala Met Tyr Ser Thr	His His Lys Lys Leu		
165	170	175	
Val His Lys			

<210> 258
<211> 307
<212> PRT
<213> Mycoplasma pulmonis

<400> 258			
Met Ser Gln Asn Lys Ile Tyr Asp Val Ala Ile Gly Ala Gly Pro			
1	5	10	15
Gly Ala Leu Thr Ala Ala Ile Tyr Thr Ser Arg Gly Asn Leu Asp Thr			
20	25	30	
Val Phe Ile Asp Asn Ala Ala Pro Gly Gly Lys Leu Ile Tyr Ala Ser			
35	40	45	
Lys Ile Glu Asn Trp Pro Gly Asp Thr Ile Val Lys Gly Thr Asp Leu			
50	55	60	
Ala Ile Arg Phe Phe Glu His Ala Gln Ala Phe Gly Ala Lys Tyr Glu			
65	70	75	80
Tyr Gly Lys Val Val Asp Leu Ile Asn Ile Lys Asp Asp Leu Lys Glu			
85	90	95	
Leu Val Leu Glu Asp Gly Lys Ile Gln Ala Lys Ser Val Ile Ile			
100	105	110	
Ala Ser Gly Met Val Ser Arg Lys Pro Arg Glu Ile Leu Asn Tyr Asp			
115	120	125	
Glu Phe Glu Asn Arg Gly Val Ser Tyr Cys Val Ile Cys Asp Gly Pro			
130	135	140	
Met Tyr Gly His Asn Pro Ala Ile Ile Gly Gly Asn Ser Ala			
145	150	155	160
Val Glu Glu Gly Thr Phe Leu Ser Ser Ile Ala Ser Lys Val Tyr Val			
165	170	175	
Ile Val Arg Asp Ser Asp Phe Ile Ala Glu Lys Ala Leu Val Asn Asp			
180	185	190	
Leu Lys Ser Arg Lys Asn Ile Glu Val Leu Phe Asn Ala Ser Val Lys			
195	200	205	
Glu Leu His Gly Lys Asp Ala Leu Glu Tyr Ala Ile Val Asn His Asn			
210	215	220	
Gly Lys Glu Val Lys Leu Glu Val Ala Ser Leu Phe Pro Tyr Ile Gly			
225	230	235	240
Phe Leu Pro Ser Ala Glu Tyr Ala Lys Asn Ala Gly Val Leu Glu Pro			
245	250	255	
Asn Gly Phe Ile Lys Thr Asp Glu Phe Met Glu Thr Lys Val Pro Gly			
260	265	270	
Ile Tyr Ala Ile Gly Asp Ile Arg Ile Lys Asp Ile Arg Gln Ile Leu			
275	280	285	
Thr Ala Thr Ser Asp Gly Thr Ile Ala Gly Lys Ile Leu Thr Asn Arg			
290	295	300	
Ile Lys Lys			
305			

<210> 259
<211> 316

<212> PRT

<213> Neisseria meningitidis

<400> 259

Met Ser Gln His Arg Lys Leu Ile Ile Leu Gly Ser Gly Pro Ala Gly
1 5 10 15
Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Asn Pro Val Ile
20 25 30
Ile Thr Gly Ile Ala Gln Gly Gly Gln Leu Met Thr Thr Glu Val
35 40 45
Asp Asn Trp Pro Ala Asp Ala Asp Gly Val Gln Gly Thr Glu Leu Met
50 55 60
Ala Arg Phe Leu Ala His Ala Glu Arg Phe Gly Thr Glu Ile Ile Phe
65 70 75 80
Asp Gln Ile Asn Ala Val Asp Leu Gln Lys Arg Pro Phe Thr Leu Lys
85 90 95
Gly Asp Met Gly Glu Tyr Thr Cys Asp Ala Leu Ile Val Ala Thr Gly
100 105 110
Ala Ser Ala Lys Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe Ala Gly
115 120 125
Lys Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn
130 135 140
Gln Asp Val Ala Val Val Gly Gly Asn Thr Ala Val Glu Glu Ala
145 150 155 160
Leu Tyr Leu Ala Asn Ile Ala Lys Thr Val Thr Leu Ile His Arg Arg
165 170 175
Ser Glu Phe Arg Ala Glu Lys Ile Met Ile Asp Lys Leu Met Lys Arg
180 185 190
Val Glu Glu Gly Lys Ile Ile Leu Lys Leu Glu Ser Asn Leu Gln Glu
195 200 205
Val Leu Gly Asp Asp Arg Gly Val Asn Gly Ala Leu Leu Lys Asn Asn
210 215 220
Asp Gly Ser Glu Gln Gln Ile Ala Val Ser Gly Ile Phe Ile Ala Ile
225 230 235 240
Gly His Lys Pro Asn Thr Asp Ile Phe Lys Gly Gln Leu Glu Met Asp
245 250 255
Glu Ala Gly Tyr Leu Lys Thr Lys Gly Gly Thr Ala Asp Asn Val Gly
260 265 270
Ala Thr Asn Ile Glu Gly Val Trp Ala Ala Gly Asp Val Lys Asp His
275 280 285
Thr Tyr Arg Gln Ala Ile Thr Ser Ala Ala Ser Gly Cys Gln Ala Ala
290 295 300
Leu Asp Ala Glu Arg Trp Leu Gly Ser Gln Asn Ile
305 310 315

<210> 260

<211> 316

<212> PRT

<213> Neisseria meningitidis

<400> 260

Met Ser Gln His Arg Lys Leu Ile Ile Leu Gly Ser Gly Pro Ala Gly
1 5 10 15
Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Asn Pro Val Ile
20 25 30
Ile Thr Gly Ile Ala Gln Gly Gly Gln Leu Met Thr Thr Glu Val
35 40 45
Asp Asn Trp Pro Ala Asp Ala Asp Gly Val Gln Gly Pro Glu Leu Met
50 55 60
Ala Arg Phe Leu Ala His Ala Glu Arg Phe Gly Thr Glu Ile Ile Phe
65 70 75 80
Asp Gln Ile Asn Ala Val Asp Leu Gln Lys Arg Pro Phe Thr Leu Lys
85 90 95
Gly Asp Met Gly Glu Tyr Thr Cys Asp Ala Leu Ile Val Ala Thr Gly
100 105 110
Ala Ser Ala Lys Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe Ala Gly

115	120	125
Lys Gly Val Ser Ala Cys Ala	Thr Cys Asp Gly Phe	Phe Tyr Lys Asn
130	135	140
Gln Asp Val Ala Val Val	Gly Gly Asn Thr Ala Val	Glu Ala
145	150	155
Leu Tyr Leu Ala Asn Ile Ala	Lys Thr Val Thr Leu Ile His	Arg Arg
165	170	175
Ser Glu Phe Arg Ala Glu Lys Ile Met	Ile Asp Lys Leu Met	Lys Arg
180	185	190
Val Glu Glu Gly Lys Ile Ile	Leu Lys Leu Glu Ser Asn	Leu Gln Glu
195	200	205
Val Leu Gly Asp Asp Arg Gly	Val Asn Gly Ala	Leu Leu Lys Asn Asn
210	215	220
Asp Gly Ser Glu Gln Gln	Ile Ala Val Ser Gly Ile	Phe Ile Ala Ile
225	230	235
Gly His Lys Pro Asn Thr Asp Ile	Phe Lys Gly Gln	Leu Glu Met Asp
245	250	255
Glu Ala Gly Tyr Leu Lys Thr	Lys Gly Gly Thr Ala Asp	Asn Val Gly
260	265	270
Ala Thr Asn Ile Glu Gly Val	Trp Ala Ala Gly Asp	Val Lys Asp His
275	280	285
Thr Tyr Arg Gln Ala Ile	Thr Ser Ala Ala Ser Gly	Cys Gln Ala Ala
290	295	300
Leu Asp Ala Glu Arg Trp	Leu Gly Ser Gln Asn	Ile
305	310	315

<210> 261

<211> 316

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 261

Met Ser Glu Val Lys His Ser Arg	Leu Ile Leu Gly Ser Gly Pro	
1	5	10 15
Ala Gly Tyr Thr Ala Ala Val	Tyr Ala Ala Arg Ala Asn	Leu Lys Pro
20	25	30
Val Val Ile Thr Gly Ile Gln	Pro Gly Gly Gln	Leu Thr Thr Thr
35	40	45
Glu Val Asp Asn Trp Pro Gly	Asp Val Glu Gly	Leu Thr Gly Pro Ala
50	55	60
Leu Met Thr Arg Met Gln Gln	His Ala Glu Arg Phe Asp	Thr Glu Ile
65	70	75 80
Val Tyr Asp His Ile His	Thr Ala Glu Leu Gln Gln	Arg Pro Phe Thr
85	90	95
Leu Lys Gly Asp Ser Gly Thr	Thr Tyr Cys Asp Ala	Leu Ile Ala
100	105	110
Thr Gly Ala Ser Ala Gln	Tyr Leu Gly Met Ser Ser	Glu Ala Phe
115	120	125
Met Gly Lys Gly Val Ser Ala	Cys Ala Thr Cys Asp Gly	Phe Phe Tyr
130	135	140
Arg Asn Gln Val Val Cys	Val Gly Gly Asn Thr Ala	Val Glu
145	150	155 160
Glu Ala Leu Tyr Leu Ala Asn	Ile Ala Lys Glu Val His	Leu Ile His
165	170	175
Arg Arg Asp Lys Leu Arg	Ser Glu Lys Ile Leu Gln Asp	Lys Leu Phe
180	185	190
Asp Lys Ala Glu Asn Gly	Asn Val His Leu His	Trp Asn Thr Thr Leu
195	200	205
Asp Glu Val Leu Gly Asp	Ala Ser Gly Val Thr	Gly Val Arg Leu Lys
210	215	220
Ser Thr Ile Asp Gly Ser	Thr Ser Glu Leu Ser	Leu Ala Gly Val Phe
225	230	235 240
Ile Ala Ile Gly His Lys	Pro Asn Thr Asp Leu Phe	Gln Gly Gln Leu
245	250	255
Glu Met Arg Asp Gly Tyr	Leu Arg Ile His Gly	Gly Ser Glu Gly Asn
260	265	270

Ala Thr Gln Thr Ser Ile Glu Gly Val Phe Ala Ala Gly Asp Val Ala
 275 280 285
 Asp His Val Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ala Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Ala Glu Lys Tyr Leu Asp Asp His
 305 310 315

<210> 262
 <211> 316
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 262
 Met Pro Asp Thr Leu Arg His Ala Arg Val Ile Ile Leu Gly Ser Gly
 1 5 10 15
 Pro Ala Gly Tyr Ser Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Lys
 20 25 30
 Pro Leu Leu Ile Thr Gly Met Gln Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Glu Val Asp Asn Trp Pro Gly Asp Pro His Gly Leu Thr Gly Pro
 50 55 60
 Ala Leu Met Gln Arg Met Gln Glu His Ala Glu Arg Phe Glu Thr Glu
 65 70 75 80
 Ile Val Phe Asp His Ile His Ala Val Asp Leu Ala Gly Lys Pro Phe
 85 90 95
 Thr Leu Arg Gly Asp Asn Gly Thr Tyr Thr Cys Asp Ala Leu Ile Val
 100 105 110
 Ala Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Gln Ala
 115 120 125
 Phe Met Gly Lys Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe
 130 135 140
 Tyr Arg Asn Arg Glu Val Ala Val Ile Gly Gly Asn Thr Ala Val
 145 150 155 160
 Glu Glu Ala Leu Tyr Leu Ala Asn Ile Ala Ser Arg Val Thr Leu Val
 165 170 175
 His Arg Arg Glu Thr Phe Arg Ala Glu Lys Ile Leu Gln Asp Lys Leu
 180 185 190
 Gln Ala Arg Val Ala Glu Gly Lys Ile Val Leu Lys Leu Asn Ala Glu
 195 200 205
 Val Asp Glu Val Leu Gly Asp Thr Met Gly Val Thr Gly Val Arg Leu
 210 215 220
 Lys Thr Arg Asp Gly Gly Ser Glu Glu Ile Ala Val Asp Gly Met Phe
 225 230 235 240
 Val Ala Ile Gly His Thr Pro Asn Thr Ser Leu Phe Glu Gly Gln Leu
 245 250 255
 Ala Leu Lys Asp Gly Tyr Leu Val Val Asn Gly Gly Arg Glu Gly Asn
 260 265 270
 Ala Thr Ala Thr Asn Val Pro Gly Val Phe Ala Ala Gly Asp Val Ala
 275 280 285
 Asp His Val Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ala Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Val Glu Arg Tyr Leu Asp Ser Leu
 305 310 315

<210> 263
 <211> 345
 <212> PRT
 <213> *Pyrococcus abyssi*

<400> 263
 Met Leu Leu Asn Ile His Gln Glu Ser Tyr Val Glu Val Val Lys Met
 1 5 10 15
 Phe Ser Leu Gly Gly Leu Gly Lys Ser Arg Val Asp Glu Ser Lys Val
 20 25 30
 Trp Asp Val Ile Ile Ile Gly Ala Gly Pro Ala Gly Tyr Thr Ala Ala

35	40	45
Ile	Tyr Ala Ala Arg Phe Gly Leu Asp Thr Ile	Ile Ile Thr Lys Asp
50	55	60
Leu	Gly Gly Asn Met Ala Ile Thr Asp Leu Ile	Glu Asn Tyr Pro Gly
65	70	75
Phe	Pro Glu Gly Ile Ser Gly Ser Glu Leu Ala	Lys Arg Met Tyr Glu
	85	90
His	Val Lys Lys Tyr Gly Val Asp Val Ile	Phe Asp Glu Val Val Arg
	100	105
Ile	Asp Pro Ala Glu Cys Ala Tyr Tyr Glu Gly	Pro Cys Gln Phe Glu
	115	120
Val	Lys Thr Ala Asn Gly Lys Glu Tyr Lys Gly	Lys Thr Ile Ile Ile
	130	135
Ala	Val Gly Ala Glu Pro Arg Lys Leu His Val	Pro Gly Glu Lys Glu
	145	150
Phe	Thr Gly Arg Gly Val Ser Tyr Cys Ala Thr	Cys Asp Gly Pro Leu
	165	170
Phe	Val Gly Lys Glu Val Ile Val Val Gly Gly	Asn Thr Ala Leu
	180	185
Gln	Glu Ala Leu Tyr Leu His Ser Ile Gly Val	Lys Val Thr Leu Val
	195	200
His	Arg Arg Asp Lys Phe Arg Ala Asp Lys Ile	Leu Gln Asp Arg Leu
	210	215
Lys	Gln Ala Gly Ile Pro Thr Ile Leu Asn Thr	Val Val Thr Glu Ile
	225	230
Arg	Gly Thr Asn Lys Val Glu Ser Val Val Leu	Lys Asn Val Lys Thr
	245	250
Gly	Glu Thr Phe Glu Lys Lys Val Asp Gly Val	Phe Ile Phe Ile Gly
	260	265
Tyr	Glu Pro Lys Thr Asp Phe Val Lys His Leu	Gly Ile Thr Asp Glu
	275	280
Tyr	Gly Tyr Ile Lys Val Asp Met Tyr Met Arg	Thr Lys Val Pro Gly
	290	295
Ile	Phe Ala Ala Gly Asp Ile Thr Asn Val Phe	Lys Gln Ile Ala Val
	305	310
Ala	Val Gly Gln Gly Ala Ile Ala Ala Asn Ser	Ala Lys Glu Phe Ile
	325	330
Glu	Ser Trp Asn Gly Lys Ser Ile Glu	
	340	345

<210> 264
 <211> 334
 <212> PRT
 <213> Rickettsia prowazekii

<400> 264			
Met Tyr Asn Thr Asp Ile Val Ile Ile Gly Ser Gly Pro Val Gly Leu			
1	5	10	15
Phe Ala Val Phe Gln Ala Gly Met Leu Gly Met Lys Cys His Val Ile			
20	25	30	
Asp Ala Gln Glu Val Ile Gly Gly Gln Cys Ile Thr Leu Tyr Pro Glu			
35	40	45	
Lys His Ile Tyr Asp Ile Pro Ala Tyr Pro Lys Ile Ala Ala Lys Glu			
50	55	60	
Leu Ile Lys Gln Leu Glu Ser Gln Ala Ala Pro Phe Asn Pro Val Tyr			
65	70	75	80
His Leu Asn Gln Gln Ala Thr Glu Leu Asn Lys His Asp Asp Phe Phe			
85	90	95	
Glu Ile Lys Thr Ser Lys Asn Thr Leu Ile Lys Ser Lys Val Ile Ile			
100	105	110	
Ile Ala Ala Gly Ala Gly Ala Phe Gly Pro Asn Lys Pro Pro Ile Ala			
115	120	125	
Asn Ile Glu Ala Phe Glu Gly Lys Ser Ile Phe Tyr Phe Ile Asn Asp			
130	135	140	
Lys Ser Lys Phe Leu Gly Lys Asn Ile Val Val Ala Gly Gly Asp			
145	150	155	160

Ser Ala Val Asp Trp Ala Ile Thr Leu Ser Glu Ile Ala Asn Lys Ile
 165 170 175
 Tyr Leu Val His Arg Arg Asp Lys Phe Thr Ala Ala Thr Glu Ser Val
 180 185 190
 Arg Gln Leu Arg His Ile Ala Glu Thr Gly Lys Ile Glu Leu Val Thr
 195 200 205
 Gly Tyr Gln Leu Asn Asn Leu Asp Gly His Asn Ser Glu Leu Arg Ser
 210 215 220
 Val Ile Val Lys Asp Leu Gln Asn Asn Ile Arg Lys Leu Asp Ala Asn
 225 230 235 240
 Ile Leu Leu Pro Phe Phe Gly Leu Lys Gln Asp Leu Gly Pro Leu Ala
 245 250 255
 Asn Trp Gly Phe Asn Val Arg Leu Gln His Ile Glu Val Asn Tyr
 260 265 270
 Tyr Tyr Gln Thr Asn Ile Lys Gly Ile Tyr Ala Ile Gly Asp Val Ala
 275 280 285
 His Tyr Val Gly Lys Leu Lys Leu Ile Ile Thr Gly Phe Ala Glu Ala
 290 295 300
 Ala Cys Ser Leu His His Ala Tyr Ser Arg Val Phe Asp Gly Lys Ala
 305 310 315 320
 Leu His Phe Glu Tyr Ser Thr Asn Lys Tyr Glu Gln Lys Gln
 325 330

<210> 265
 <211> 311
 <212> PRT
 <213> Staphylococcus aureus

<400> 265
 Met Thr Glu Ile Asp Phe Asp Ile Ala Ile Ile Gly Ala Gly Pro Ala
 1 5 10 15
 Gly Met Thr Ala Ala Val Tyr Ala Ser Arg Ala Asn Leu Lys Thr Val
 20 25 30
 Met Ile Glu Arg Gly Ile Pro Gly Gly Gln Met Ala Asn Thr Glu Glu
 35 40 45
 Val Glu Asn Phe Pro Gly Phe Glu Met Ile Thr Gly Pro Asp Leu Ser
 50 55 60
 Thr Lys Met Phe Glu His Ala Lys Lys Phe Gly Ala Val Tyr Gln Tyr
 65 70 75 80
 Gly Asp Ile Lys Ser Val Glu Asp Lys Gly Glu Tyr Lys Val Ile Asn
 85 90 95
 Phe Gly Asn Lys Glu Leu Thr Ala Lys Ala Val Ile Ile Ala Thr Gly
 100 105 110
 Ala Gly Tyr Lys Ile Gly Val Pro Gly Glu Gln Glu Leu Gly Gly
 115 120 125
 Arg Gly Val Ser Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe Lys Asn
 130 135 140
 Lys Arg Leu Phe Val Ile Gly Gly Asp Ser Ala Val Glu Glu Gly
 145 150 155 160
 Thr Phe Leu Thr Lys Phe Ala Asp Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Glu Leu Arg Ala Gln Arg Ile Leu Gln Asp Arg Ala Phe Lys Asn
 180 185 190
 Asp Lys Ile Asp Phe Ile Trp Ser His Thr Leu Lys Ser Ile Asn Glu
 195 200 205
 Lys Asp Gly Lys Val Gly Ser Val Thr Leu Thr Ser Thr Lys Asp Gly
 210 215 220
 Ser Glu Glu Thr His Glu Ala Asp Gly Val Phe Ile Tyr Ile Gly Met
 225 230 235 240
 Lys Pro Leu Thr Ala Pro Phe Lys Asp Leu Gly Ile Thr Asn Asp Val
 245 250 255
 Gly Tyr Ile Val Thr Lys Asp Asp Met Thr Thr Ser Val Pro Gly Ile
 260 265 270
 Phe Ala Ala Gly Asp Val Arg Asp Lys Gly Leu Arg Gln Ile Val Thr
 275 280 285
 Ala Thr Gly Asp Gly Ser Ile Ala Ala Gln Ser Thr Ser Gly Tyr Ile

290 295
Glu His Leu Asn Asp Gln Ala
305 310

300

<210> 266
<211> 326
<212> PRT
<213> Streptomyces coelicolor

<400> 266
Met Ser Thr Ala Lys Asp Val Arg Asp Val Ile Val Ile Gly Ser Gly
1 5 10 15
Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Asn
20 25 30
Pro Leu Val Phe Gly Gly Ala Ile Phe Val Gly Gly Ser Leu Thr Thr
35 40 45
Thr Thr Glu Val Glu Asn Phe Pro Gly Phe Pro Asp Gly Val Gln Gly
50 55 60
Pro Glu Leu Met Glu Asn Met Arg Ala Gln Ala Glu Arg Phe Gly Ala
65 70 75 80
Glu Met Val Asp Asp Asp Ile Val Ala Val Asp Leu Thr Gly Asp Val
85 90 95
Lys Thr Val Thr Asp Thr Ala Gly Thr Val His Arg Ala Arg Thr Val
100 105 110
Ile Val Ala Thr Gly Ser Gly Tyr Arg Lys Leu Gly Val Pro Lys Glu
115 120 125
Asp Glu Leu Ser Gly Arg Gly Val Ser Trp Cys Ala Thr Cys Asp Gly
130 135 140
Phe Phe Phe Arg Asp Arg Asp Ile Val Val Val Gly Gly Gly Asp Thr
145 150 155 160
Ala Met Glu Glu Ala Thr Phe Leu Thr Arg Phe Ala Arg Ser Val Thr
165 170 175
Val Val His Arg Arg Ser Ala Leu Arg Ala Ser Gln Val Met Gln Asn
180 185 190
Arg Ala Phe Ser Glu Asp Lys Ile Ser Leu Ala Phe Asp Ser Glu Val
195 200 205
Ala Thr Leu His Glu Glu Asn Gly Met Leu Ser Gly Met Thr Leu Arg
210 215 220
Asp Thr Leu Thr Gly Glu Thr Arg Glu Leu Ala Thr Thr Gly Leu Phe
225 230 235 240
Ile Ala Ile Gly His Asp Pro Arg Thr Glu Leu Phe Lys Gly Gln Leu
245 250 255
His Leu Asp Ser Glu Gly Tyr Leu Met Val Glu Ser Pro Ser Thr Arg
260 265 270
Thr Asn Val Pro Gly Val Phe Gly Ala Gly Asp Val Val Asp His Thr
275 280 285
Tyr Arg Gln Ala Ile Thr Ala Ala Ser Ser Gly Cys Ala Ala Ala Leu
290 295 300
Asp Ala Glu Arg Tyr Leu Ala Ala Arg Ser Asp Thr Ser Val Ser Ala
305 310 315 320
Glu Val Val Ala Val Ala
325

<210> 267
<211> 558
<212> PRT
<213> Streptomyces coelicolor

<400> 267
Met Ala Gln Ala Asp Gly Glu Thr Arg Thr Val Ile Met Thr Val Asp
1 5 10 15
Asp Asp Pro Gly Val Ser Arg Ala Val Ala Arg Asp Leu Arg Arg Arg
20 25 30
Tyr Gly Ala Thr Tyr Arg Ile Val Arg Ala Glu Ser Gly Glu Ser Ala
35 40 45

Leu Asp Ala Leu Arg Glu Leu Lys Leu Arg Gly Asp Leu Val Ala Val
 50 55 60
 Ile Leu Ala Asp Tyr Arg Met Pro Gln Met Asn Gly Ile Glu Phe Leu
 65 70 75 80
 Glu Gln Ala Leu Asp Val Tyr Pro Gly Ala Arg Arg Val Leu Leu Thr
 85 90 95
 Ala Tyr Ala Asp Thr Asn Ala Ala Ile Asp Ala Ile Asn Val Val Asp
 100 105 110
 Leu Asp His Tyr Leu Leu Lys Pro Trp Asp Pro Pro Glu Glu Lys Leu
 115 120 125
 Tyr Pro Val Leu Asp Asp Leu Leu Gln Ala Trp Arg Ala Gly Asp His
 130 135 140
 Arg Pro Val Pro Ser Thr Lys Val Val Gly His Arg Trp Ser Ala Arg
 145 150 155 160
 Ser Ser Glu Val Arg Glu Phe Leu Ala Arg Asn Gln Val Pro Tyr Arg
 165 170 175
 Trp Tyr Ser Ser Asp Glu Pro Glu Gly Arg Arg Leu Leu Ser Ala Ala
 180 185 190
 Gly Gln Asp Gly Gln Arg Leu Pro Val Val Ile Thr Pro Asp Gly Thr
 195 200 205
 Pro Leu Val Glu Pro Glu Ala Pro Glu Leu Ala Ala Arg Val Gly Leu
 210 215 220
 Ala Thr Thr Pro Thr Ser Asp Phe Tyr Asp Leu Val Val Ile Gly Gly
 225 230 235 240
 Gly Pro Ala Gly Leu Gly Ala Ala Val Tyr Gly Ala Ser Glu Gly Leu
 245 250 255
 Arg Thr Val Leu Val Glu Arg Ser Ala Thr Gly Gly Gln Ala Gly Gln
 260 265 270
 Ser Ser Arg Ile Glu Asn Tyr Leu Gly Phe Pro Asp Gly Val Ser Gly
 275 280 285
 Gly Gln Leu Thr Glu Arg Ala Arg Arg Gln Ala Ala Arg Phe Gly Ala
 290 295 300
 Glu Ile Leu Thr Ala Arg Glu Val Thr Gly Leu Glu Ala Asn Gly Ala
 305 310 315 320
 Ala Arg Val Val Arg Phe Ser Asp Gly Ser Ala Ile Ala Ala His Ser
 325 330 335
 Val Ile Leu Ala Thr Gly Val Ser Tyr Arg Gln Leu Thr Ala Pro Gly
 340 345 350
 Thr Glu Asp Leu Ala Gly Cys Gly Val Phe Tyr Gly Ser Ala Leu Thr
 355 360 365
 Glu Ala Ala Ser Cys Gln Gly His Asp Val Tyr Ile Val Gly Gly Ala
 370 375 380
 Asn Ser Ala Gly Gln Ala Ala Met Tyr Leu Ala Arg Gly Ala Lys Ser
 385 390 395 400
 Val Thr Leu Leu Val Arg Gly Gly Ser Leu Glu Ala Ser Met Ser Tyr
 405 410 415
 Tyr Leu Ile Gln Gln Ile Glu Glu Thr Pro Asn Ile Arg Val Arg Cys
 420 425 430
 Gly Thr Leu Val Glu Gly Ala His Gly Asp Gly His Leu Glu Arg Leu
 435 440 445
 Thr Leu Arg Asp Ala Ala Ser Gly Ala Thr Glu Leu Val Asp Ala Gln
 450 455 460
 Trp Leu Phe Val Phe Ile Gly Ala Ala Pro Leu Thr Asp Trp Leu Asp
 465 470 475 480
 Gly Thr Val Leu Arg Asp Glu Arg Gly Phe Ile Leu Ala Gly Pro Asp
 485 490 495
 Leu Thr Pro Asp Gly Arg Pro Pro Ala Gly Trp Glu Leu Asp Arg Pro
 500 505 510
 Pro Tyr His Leu Glu Thr Ser Val Pro Gly Val Phe Val Ala Gly Asp
 515 520 525
 Ala Arg Ala Glu Ser Ala Lys Arg Val Ala Ser Ala Val Gly Glu Gly
 530 535 540
 Ala Met Ala Val Met Leu Val His Arg Tyr Leu Glu Gln Ser
 545 550 555

<211> 303
<212> PRT
<213> Streptococcus pneumoniae

<400> 268
Met Tyr Asp Thr Ile Ile Ile Gly Ala Gly Pro Ala Gly Met Thr Ala
1 5 10 15
Ala Leu Tyr Ala Ala Arg Ser Asn Leu Lys Val Ala Leu Ile Glu Gly
20 25 30
Gly Leu Pro Gly Gly Gln Met Asn Asn Thr Ser Asp Ile Glu Asn Tyr
35 40 45
Pro Gly Tyr Ala Asn Ile Ser Gly Pro Glu Leu Ala Glu Lys Met Phe
50 55 60
Glu Pro Leu Glu Asn Leu Gly Val Glu His Ile Tyr Gly Tyr Val Glu
65 70 75 80
Asn Val Glu Asp His Gly Asp Phe Lys Lys Val Met Thr Asp Asp Gln
85 90 95
Thr Tyr Glu Thr Arg Thr Val Ile Val Ala Thr Gly Ser Lys His Arg
100 105 110
Pro Leu Gly Val Pro Gly Glu Glu Leu Asn Ser Arg Gly Val Ser
115 120 125
Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe Arg Asp Gln Asp Leu Leu
130 135 140
Val Val Gly Gly Asp Ser Ala Val Glu Glu Ala Leu Phe Leu Thr
145 150 155 160
Arg Phe Ala Lys Thr Val Thr Ile Val His Arg Arg Asp Gln Leu Arg
165 170 175
Ala Gln Lys Val Leu Gln Asp Arg Ala Phe Ala Asn Glu Lys Ile Ser
180 185 190
Phe Ile Trp Asp Ser Val Val Arg Glu Ile Lys Gly Glu Asn Arg Val
195 200 205
Glu Ser Val Val Phe Glu Asn Val Lys Thr Gly Gln Val Thr Glu Gln
210 215 220
Ala Phe Gly Gly Val Phe Ile Tyr Val Gly Leu Asp Pro Leu Ser Asp
225 230 235 240
Phe Val Lys Glu Leu Asn Ile Gln Asp Gln Ala Gly Trp Ile Val Thr
245 250 255
Asp Asn His Met Lys Thr Ala Val Asp Gly Ile Phe Ala Val Gly Asp
260 265 270
Val Arg Leu Lys Asp Leu Arg Gln Val Thr Thr Ala Val Gly Asp Gly
275 280 285
Ala Ile Ala Gly Gln Glu Ala Tyr Lys Phe Ile Thr Glu His Ser
290 295 300

<210> 269
<211> 330
<212> PRT
<213> Streptococcus pyogenes

<400> 269
Met Lys Asp Lys Ala Tyr Asp Ile Thr Ile Ile Gly Gly Pro Ile
1 5 10 15
Gly Leu Phe Ala Ala Phe Tyr Ala Gly Leu Arg Gly Val Thr Val Lys
20 25 30
Ile Ile Glu Ser Leu Ser Glu Leu Gly Gly Gln Pro Ala Ile Leu Tyr
35 40 45
Pro Glu Lys Met Ile Tyr Asp Ile Pro Ala Tyr Pro Ser Leu Thr Gly
50 55 60
Val Glu Leu Thr Glu Asn Leu Ile Lys Gln Leu Ser Arg Phe Glu Asp
65 70 75 80
Arg Thr Thr Ile Cys Leu Lys Glu Glu Val Leu Thr Phe Asp Lys Val
85 90 95
Lys Gly Gly Phe Ser Ile Arg Thr Asn Lys Ala Glu His Phe Ser Lys
100 105 110
Ala Ile Ile Ala Cys Gly Asn Gly Ala Phe Ala Pro Arg Thr Leu
115 120 125

Gly Leu Glu Ser Glu Glu Asn Phe Ala Asp His Asn Leu Phe Tyr Asn
 130 135 140
 Val His Gln Leu Asp Gln Phe Ala Gly Gln Lys Val Val Ile Cys Gly
 145 150 155 160
 Gly Gly Asp Ser Ala Val Asp Trp Ala Leu Ala Leu Glu Asp Ile Ala
 165 170 175
 Glu Ser Val Thr Val Val His Arg Arg Asp Ala Phe Arg Ala His Glu
 180 185 190
 His Ser Val Glu Leu Leu Lys Ala Ser Thr Val Asn Leu Leu Thr Pro
 195 200 205
 Tyr Val Pro Lys Ala Leu Lys Gly Ile Gly Asn Leu Ala Glu Lys Leu
 210 215 220
 Val Ile Gln Lys Val Lys Glu Asp Glu Val Leu Glu Leu Glu Leu Asp
 225 230 235 240
 Ser Leu Ile Val Ser Phe Gly Phe Ser Thr Ser Asn Lys Asn Leu Lys
 245 250 255
 Asn Trp Asn Leu Asp Tyr Lys Arg Ser Ser Ile Thr Val Ser Pro Leu
 260 265 270
 Phe Gln Thr Ser Gln Glu Gly Ile Phe Ala Ile Gly Asp Ala Ala Ala
 275 280 285
 Tyr Asn Gly Lys Val Asp Leu Ile Ala Thr Gly Phe Gly Glu Ala Pro
 290 295 300
 Thr Ala Val Asn Gln Ala Ile Asn Tyr Ile Tyr Pro Asp Arg Asp Asn
 305 310 315 320
 Arg Val Val His Ser Thr Ser Leu Ile Asp
 325 330

<210> 270
 <211> 325
 <212> PRT
 <213> Sulfolobus solfataricus

<400> 270
 Met Pro Leu Lys Thr Tyr Asp Thr Ile Ile Val Gly Ala Gly Ile Ala
 1 5 10 15
 Gly Leu Ser Ala Ala Leu Tyr Ser Ser Arg Gln Lys Leu Ser Thr Leu
 20 25 30
 Val Leu Ser Lys Asp Leu Gly Gly Gln Leu Thr Leu Thr Asp Leu Ile
 35 40 45
 Glu Asn Tyr Pro Gly Ile Glu Ser Thr Gly Gly Leu Thr Leu Ala Gln
 50 55 60
 Lys Ile Glu Lys Gln Ala Lys Lys Phe Gly Ala Glu Phe Ile Tyr Gly
 65 70 75 80
 Glu Glu Val Lys Glu Ile Ala Gln Glu Ser Asp Leu Phe Ile Ile Lys
 85 90 95
 Gly Ile Lys Gly Glu Tyr Ala Gly Arg Ala Leu Ile Leu Ala Phe Gly
 100 105 110
 Lys Thr Pro Arg Glu Ile Asn Val Pro Gly Glu Gln Glu Phe Lys Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Ile Cys Asp Ala Ala Phe Phe Lys Gly
 130 135 140
 Lys Pro Ala Ala Val Ile Gly Glu Gly Glu Pro Gly Ile Glu Ala Ile
 145 150 155 160
 Glu Leu Leu Ser Asn Tyr Ala Asn Pro Ala Tyr Tyr Ile Thr Ser Ser
 165 170 175
 Ser Tyr Leu Ala Gly Glu Glu Ile Val Lys Asn Val Val Asn Lys
 180 185 190
 Pro Thr Val Lys Ile Leu Thr Ser Ser Arg Val Leu Glu Ile Arg Gly
 195 200 205
 Asn Ser Lys Val Glu Glu Leu Val Ile Lys Arg Gly Asp Glu Ile Leu
 210 215 220
 Gln Leu Lys Val Asp Gly Val Ile Ile Glu Met Gly Tyr Thr Leu Lys
 225 230 235 240
 Thr Glu Phe Leu Lys Gly Phe Val Glu Leu Asn Glu Lys Gly Glu Ile
 245 250 255
 Ile Val Asp Glu Leu Gly Arg Thr Ser Arg Glu Gly Val Phe Ala Ala

260	265	270
Gly Asp Val Thr Gln Thr Pro Tyr Lys Gln Ala Val Val Ala Ala Ala		
275	280	285
Glu Gly Val Lys Ala Ala Leu Ser Ala Tyr Asn Tyr Ile Arg Ser Lys		
290	295	300
Arg Gly Leu Pro Pro Val Thr Val Asp Trp Lys Ala Glu Lys Lys Lys		
305	310	315
Val Ser Phe Arg Leu		
325		

<210> 271
<211> 323
<212> PRT
<213> Sulfolobus solfataricus

<400> 271	271		
Met Ser Leu Leu Pro Arg Thr Thr Ser Val Lys Pro Gly Glu Lys Phe			
1	5	10	15
Asp Val Ile Ile Val Gly Leu Gly Pro Ala Ala Tyr Gly Ala Ala Leu			
20	25	30	
Tyr Ser Ala Arg Tyr Met Leu Lys Thr Leu Val Ile Gly Glu Thr Pro			
35	40	45	
Gly Gly Gln Leu Thr Glu Ala Gly Ile Val Asp Asp Tyr Leu Gly Leu			
50	55	60	
Ile Glu Ile Gln Ala Ser Asp Met Ile Lys Val Phe Asn Lys His Ile			
65	70	75	80
Glu Lys Tyr Glu Val Pro Val Leu Leu Asp Ile Val Glu Lys Ile Glu			
85	90	95	
Asn Arg Gly Asp Glu Phe Val Val Lys Thr Lys Arg Lys Gly Glu Phe			
100	105	110	
Lys Ala Asp Ser Val Ile Leu Gly Ile Gly Val Lys Arg Arg Lys Leu			
115	120	125	
Gly Val Pro Gly Glu Gln Glu Phe Ala Gly Arg Gly Ile Ser Tyr Cys			
130	135	140	
Ser Val Cys Asp Ala Pro Leu Phe Lys Asn Arg Val Val Ala Val Ile			
145	150	155	160
Gly Gly Gly Asp Ser Ala Leu Glu Gly Ala Glu Ile Leu Ser Ser Tyr			
165	170	175	
Ser Thr Lys Val Tyr Leu Ile His Arg Arg Asp Thr Phe Lys Ala Gln			
180	185	190	
Pro Ile Tyr Val Glu Thr Val Lys Lys Pro Asn Val Glu Phe Val			
195	200	205	
Leu Asn Ser Val Val Lys Glu Ile Lys Gly Asp Lys Val Val Lys Gln			
210	215	220	
Val Val Val Glu Asn Leu Lys Thr Gly Glu Ile Lys Glu Leu Asn Val			
225	230	235	240
Asn Gly Val Phe Ile Glu Ile Gly Phe Asp Pro Pro Thr Asp Phe Ala			
245	250	255	
Lys Ser Asn Gly Ile Glu Thr Asp Thr Asn Gly Tyr Ile Lys Val Asp			
260	265	270	
Glu Trp Met Arg Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Cys			
275	280	285	
Thr Ser Ala Trp Leu Gly Phe Arg Gln Val Ile Thr Ala Val Ala Gln			
290	295	300	
Gly Ala Val Ala Ala Thr Ser Ala Tyr Arg Tyr Val Thr Glu Lys Lys			
305	310	315	320
Gly Lys Lys			

<210> 272
<211> 332
<212> PRT
<213> Sulfolobus solfataricus

<400> 272

Met Asp Glu Tyr Asp Ile Val Val Ile Gly Gly Gly Pro Val Gly Leu
 1 5 10 15
 Phe Gly Thr Phe Tyr Ala Gly Leu Arg Asp Met Lys Thr Leu Leu Ile
 20 25 30
 Asp Ala Gln Asp Glu Leu Gly Gly Gln Leu Val Ser Leu Tyr Pro Glu
 35 40 45
 Lys Ile Val Tyr Asp Val Gly Gly Leu Ala Gly Ile Gln Ala Tyr Glu
 50 55 60
 Leu Ala Gln Arg Leu Ile Glu Gln Ala Lys Met Phe Gly Pro Asp Ile
 65 70 75 80
 Lys Val Asn Glu Leu Ala Asp Met Ile Glu Lys Thr Asn Asp Asn Met
 85 90 95
 Trp Ile Val Lys Thr Asp Lys Ala Thr Tyr Lys Thr Lys Thr Ile Phe
 100 105 110
 Ile Ala Ala Gly Ile Gly Lys Ile Val Pro Ser Arg Leu Gly Ala Lys
 115 120 125
 Gly Glu Ile Glu Tyr Glu Asn Arg Gly Val Tyr Tyr Thr Val Arg Arg
 130 135 140
 Lys Lys Asp Phe Glu Gly Lys Arg Val Leu Ile Val Gly Gly Asp
 145 150 155 160
 Ser Ala Val Asp Trp Ala Leu Thr Leu Ala Pro Val Ala Lys Ser Val
 165 170 175
 Thr Leu Ile His Arg Arg Asp Gln Phe Arg Ala His Glu Arg Ser Val
 180 185 190
 Lys Glu Leu Phe Arg Val Ala Asn Val Tyr Val Trp His Glu Leu Lys
 195 200 205
 Glu Val Lys Gly Asp Gly Asn Lys Val Thr Gln Ala Ile Ile Phe Asp
 210 215 220
 Asn Arg Thr Lys Glu Glu Lys Val Leu Asp Val Asp Ser Val Ile Ile
 225 230 235 240
 Ser Ile Gly Tyr Lys Gly Asp Leu Gly Asn Ile Pro Lys Trp Gly Val
 245 250 255
 Thr Met Lys Gly Arg Asp Ile Val Val Asn Gly Arg Met Glu Thr Asn
 260 265 270
 Leu Pro Gly Val Tyr Ala Gly Gly Asp Ile Val Gln Met Glu Gly Ser
 275 280 285
 Pro Lys Leu Ala Leu Ile Ala Val Gly Phe Ala His Ala Ala Ile Ala
 290 295 300
 Ile Ser Val Ala Lys Lys Tyr Val Glu Pro Asn Ala Ser Leu Phe Ala
 305 310 315 320
 Gly His Ser Ser Glu Met Asp Lys Phe Lys Pro Lys
 325 330

<210> 273
 <211> 324
 <212> PRT
 <213> Rhizobium loti

<400> 273

Met Thr Thr Lys His Ala Pro Val Leu Ile Ile Gly Ser Gly Pro Ala
 1 5 10 15
 Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Met Leu Lys Pro Met
 20 25 30
 Leu Val Ala Gly Leu Gln Gln Gly Gly Gln Leu Met Ile Thr Thr Asp
 35 40 45
 Val Glu Asn Tyr Pro Gly Phe Ala Asp Pro Ile Gln Gly Pro Trp Leu
 50 55 60
 Met Glu Gln Met Met Lys Gln Ala Glu His Val Gly Thr Asp Ile Ile
 65 70 75 80
 Asn Asp Ile Ile Thr Glu Val Asp Leu Asn Val Arg Pro Phe Arg Ala
 85 90 95
 Lys Gly Asp Ser Gly Thr Thr Tyr Thr Ala Asp Ala Leu Ile Ile Ala
 100 105 110
 Thr Gly Ala Gln Ala Lys Trp Leu Gly Ile Pro Thr Glu Gln Asp Phe
 115 120 125
 Met Gly Phe Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr

130 Arg Gly Lys Asp Val Ala Val Val Gly Gly Gly Asn Ser Ala Val Glu 145 Glu Ala Leu Tyr Leu Ser Asn Leu Ala Lys Ser Val Thr Val Ile His 165 Arg Arg Ser Asp Phe Arg Ala Glu Arg Ile Leu Arg Glu Arg Leu Leu 180 Gln Lys Asp Asn Val Arg Val Ile Trp Asp Thr Val Val Asp Glu Ile 195 Thr Gly Arg Pro Gly Lys Ala Pro Leu Pro Pro Ser Val Glu Gly Leu 210 Lys Leu Lys His Ala Val Thr Gly Ala Glu Thr His Leu Lys Val Asp 225 Gly Val Phe Val Ala Ile Gly His Ala Pro Ala Val Glu Leu Phe Val 245 Gly Lys Leu Lys Gln Lys Pro Asn Gly Tyr Leu Trp Thr Ala Pro Asn 260 Ser Thr Arg Thr Asp Val Pro Gly Val Phe Ala Ala Gly Asp Val Thr 275 Asp Asp Val Tyr Arg Gln Ala Val Thr Ala Ala Gly Leu Gly Cys Met 290 Ala Ala Leu Glu Ala Glu Lys Tyr Leu Ala Gly Ile Glu Val His Arg 305 Glu Ala Ala Glu	135 150 165 180 195 200 215 230 245 265 280 295 310 315 140 155 170 185 205 220 235 250 270 285 300 320
--	--

<210> 274
<211> 343
<212> PRT
<213> Rhizobium loti

<400> 274 Met Thr Gly Ile Ile Ser Thr Asp Val Leu Ile Val Gly Ala Gly Pro 1 Val Gly Leu Phe Ala Val Phe Glu Leu Gly Leu Phe Asp Met Lys Cys 20 His Leu Ile Asp Ile Leu Asp Lys Pro Gly Gly Gln Cys Ala Glu Leu 35 Tyr Pro Glu Lys Pro Ile Tyr Asp Ile Pro Gly Trp Pro Ser Ile Ser 50 Ala Gln Gly Leu Val Asp Lys Leu Leu Glu Gln Ile His Pro Phe Lys 65 Pro Asp Phe Thr Tyr Asn Arg Met Val Ser Ser Leu Glu Lys Leu Glu 85 Asp Gly Ser Phe Arg Val Thr Thr Asp Glu Asn Glu Val Phe Glu Ala 100 Lys Val Val Val Ile Ala Ala Gly Gly Ser Phe Gln Pro Lys Arg 115 Pro Pro Ile Pro Gly Ile Glu Pro Tyr Glu Gly Lys Ser Val Phe Tyr 130 Ser Val Arg Arg Met Glu Asp Phe Arg Gly His Asp Leu Val Ile Val 145 Gly Gly Asp Ser Ala Leu Asp Trp Thr Leu Asn Leu Gln Pro Val 165 Ala Lys Ser Val Thr Leu Val His Arg Arg Pro Glu Phe Arg Ala Ala 180 Pro Asp Ser Val Asn Lys Met Tyr Ala Met Gln Glu Met Lys Gln Leu 195 Glu Phe Arg Val Gly Gln Val Thr Gly Leu Thr Gly Ala Asp Gly Gln 210 Leu Ser Ser Ala Thr Ile Lys Gly Gly Pro Asp Gly Asp Ile Glu Val 225 Pro Cys Thr Arg Met Leu Pro Phe Phe Gly Leu Thr Met Lys Leu Gly 245 Pro Ile Ala Glu Trp Gly Leu Asn Leu His Glu Asn Leu Ile Pro Val 260	5 10 15 25 30 40 45 55 60 70 75 80 90 95 105 110 120 125 135 140 150 155 160 170 175 185 190 200 205 220 235 250 255 270 285 300 320
--	--

Asp	Thr	Glu	Lys	Phe	Gln	Thr	Ser	Val	Pro	Gly	Ile	Phe	Ala	Val	Gly
275						280						285			
Asp	Ile	Asn	Ser	Tyr	Pro	Gly	Lys	Leu	Lys	Leu	Ile	Leu	Ser	Gly	Phe
290						295						300			
His	Glu	Val	Ala	Leu	Met	Ala	Gln	Ala	Ala	Lys	Arg	Ile	Val	Ser	Pro
305						310					315				320
Gly	Glu	Arg	Ile	Val	Phe	Gln	Tyr	Thr	Thr	Ser	Ser	Thr	Ser	Leu	Gln
						325					330				335
Lys	Lys	Leu	Gly	Val	Val	Gly									
						340									

<210> 275
<211> 15
<212> PRT
<213> *Saccharomyces cerevisiae*

<220>
<221> VARIANT
<222> 9, 11
<223> Xaa = Any Amino Acid

<400> 275
Val His Asn Ile Val Thr Ile Ile Xaa Ser Xaa Pro Ala Ala His
1 5 10 15

<210> 276
<211> 104
<212> PRT
<213> *Staphylococcus aureus*

<400> 276
Met Ala Ile Val Lys Val Thr Asp Ala Asp Phe Asp Ser Lys Val Glu
1 5 10 15
Ser Gly Val Gln Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys
20 25 30
Lys Met Ile Ala Pro Val Leu Glu Glu Leu Ala Ala Asp Tyr Glu Gly
35 40 45
Lys Ala Asp Ile Leu Lys Leu Asp Val Asp Glu Asn Pro Ser Thr Ala
50 55 60
Ala Lys Tyr Glu Val Met Ser Ile Pro Thr Leu Ile Val Phe Lys Asp
65 70 75 80
Gly Gln Pro Val Asp Lys Val Val Gly Phe Gln Pro Lys Glu Asn Leu
85 90 95
Ala Glu Val Leu Asp Lys His Leu
100

<210> 277
<211> 92
<212> PRT
<213> *Staphylococcus xylosus*

<400> 277
Met Ala Glu Gln Val Asp Phe Asp Ile Ala Ile Ile Gly Ala Gly Pro
1 5 10 15
Ala Gly Met Thr Ala Ala Val Tyr Ala Ser Arg Ala Asn Leu Ser Thr
20 25 30
Val Met Ile Glu Arg Gly Met Pro Gly Gly Gln Met Ala Asn Thr Glu
35 40 45
Glu Val Glu Asn Phe Pro Gly Phe Glu Met Val Thr Gly Pro Asp Leu
50 55 60
Ser Thr Lys Met Phe Glu His Ala Lys Lys Phe Gly Ala Lys Tyr Gln
65 70 75 80
Tyr Gly Asp Ile Lys Ser Ile Glu Asp Lys Gly Ser
85 90

<210> 278

<211> 319

<212> PRT

<213> Thermoplasma acidophilum

<400> 278

Met Glu Phe Asn Leu His Ala Val Ser Ser Glu Glu Lys Glu Arg Asp
1 5 10 15
Phe Asp Val Val Ile Val Gly Ala Gly Ala Ala Gly Phe Ser Ala Ala
20 25 30
Val Tyr Ala Ala Arg Ser Gly Phe Ser Val Ala Ile Leu Asp Lys Ala
35 40 45
Val Ala Gly Gly Leu Thr Ala Glu Ala Pro Leu Val Glu Asn Tyr Leu
50 55 60
Gly Phe Lys Ser Ile Val Gly Ser Glu Leu Ala Lys Leu Phe Ala Asp
65 70 75 80
His Ala Ala Asn Tyr Ala Lys Ile Arg Glu Gly Val Glu Val Arg Ser
85 90 95
Ile Lys Lys Thr Gln Gly Gly Phe Asp Ile Glu Thr Asn Asp Asp Thr
100 105 110
Tyr His Ala Lys Tyr Val Ile Ile Thr Thr Gly Thr Thr His Lys His
115 120 125
Leu Gly Val Lys Gly Glu Ser Glu Tyr Phe Gly Lys Gly Thr Ser Tyr
130 135 140
Cys Ser Thr Cys Asp Gly Tyr Leu Phe Lys Gly Lys Arg Val Val Thr
145 150 155 160
Ile Gly Gly Asn Ser Gly Ala Ile Ala Ala Ile Ser Met Ser Glu
165 170 175
Tyr Val Lys Asn Val Thr Ile Ile Glu Tyr Met Pro Lys Tyr Met Cys
180 185 190
Glu Asn Ala Tyr Val Gln Glu Ile Lys Lys Arg Asn Ile Pro Tyr Ile
195 200 205
Met Asn Ala Gln Val Thr Glu Ile Val Gly Asp Gly Lys Lys Val Thr
210 215 220
Gly Val Lys Tyr Lys Asp Arg Thr Thr Gly Glu Glu Lys Leu Ile Glu
225 230 235 240
Thr Asp Gly Val Phe Ile Tyr Val Gly Leu Ile Pro Gln Thr Ser Phe
245 250 255
Leu Lys Asp Ser Gly Val Lys Leu Asp Glu Arg Gly Tyr Ile Val Val
260 265 270
Asp Ser Arg Gln Arg Thr Ser Val Pro Gly Val Tyr Ala Ala Gly Asp
275 280 285
Val Thr Ser Gly Asn Phe Ala Gln Ile Ala Ser Ala Val Gly Asp Gly
290 295 300
Cys Lys Ala Ala Leu Ser Leu Tyr Ser Asp Ser Ile Ser Lys Lys
305 310 315

<210> 279

<211> 317

<212> PRT

<213> Thermotoga maritima

<400> 279

Met Val Phe Phe Asp Thr Gly Ser Leu Lys Lys Glu Ile Lys Asp
1 5 10 15
Lys Tyr Asp Ile Val Val Val Gly Gly Gly Pro Ala Gly Leu Thr Ser
20 25 30
Ala Ile Tyr Ala Arg Arg Ala Gly Leu Ser Val Leu Val Val Glu Lys
35 40 45
Ala Ile Glu Gly Gly Tyr Val Asn Leu Thr His Leu Val Glu Asn Tyr
50 55 60
Pro Gly Phe Pro Ala Ile Ser Gly Glu Glu Leu Ala Ser Lys Phe Lys
65 70 75 80
Glu His Ala Glu Lys Phe Gly Ala Asp Ile Tyr Asn Ala Glu Val Val
85 90 95

Lys Leu Glu Val Gln Gly Asp Lys Lys Val Val Glu Leu Asp Asp Gly
 100 105 110
 Lys Arg Ile Glu Ala Pro Val Val Ile Val Ala Thr Gly Ala Asn Pro
 115 120 125
 Lys Lys Leu Asn Val Pro Gly Glu Lys Glu Phe Phe Gly Lys Gly Val
 130 135 140
 Ser Tyr Cys Ala Thr Cys Asp Gly Tyr Leu Phe Ala Gly Lys Asp Val
 145 150 155 160
 Ile Val Val Gly Gly Asp Ser Ala Cys Asp Glu Ser Ile Phe Leu
 165 170 175
 Ser Asn Ile Val Asn Lys Ile Thr Met Ile Gln Leu Leu Glu Thr Leu
 180 185 190
 Thr Ala Ala Lys Val Leu Gln Glu Arg Val Leu Asn Asn Pro Lys Ile
 195 200 205
 Glu Val Ile Tyr Asn Ser Thr Val Arg Glu Ile Arg Gly Lys Asp Lys
 210 215 220
 Val Glu Glu Val Val Ile Glu Asn Val Lys Thr Gly Glu Thr Lys Val
 225 230 235 240
 Leu Lys Ala Asp Gly Val Phe Ile Phe Ile Gly Leu Asp Pro Asn Ser
 245 250 255
 Lys Leu Leu Glu Gly Leu Val Glu Leu Asp Pro Tyr Gly Tyr Val Ile
 260 265 270
 Thr Asp Glu Asn Met Glu Thr Ser Val Lys Gly Ile Tyr Ala Val Gly
 275 280 285
 Asp Val Arg Lys Lys Asn Leu Arg Gln Ile Val Thr Ala Val Ala Asp
 290 295 300
 Gly Ala Ile Ala Val Glu His Ala Ala Lys His Tyr Phe
 305 310 315

<210> 280
 <211> 326
 <212> PRT
 <213> Thermoplasma volcanium

<400> 280
 Met Asn Leu Tyr Arg Gly Met Glu Phe Asn Leu Arg Ser Val Ser Thr
 1 5 10 15
 Glu Ala Lys Glu Arg Asp Phe Asp Val Ile Ile Ile Gly Ala Gly Ala
 20 25 30
 Ala Gly Phe Ser Ala Ala Val Tyr Ala Ser Arg Ser Gly Leu Ser Ala
 35 40 45
 Val Ile Leu Asp Lys Asn Val Ala Gly Gly Leu Thr Ala Glu Ala Pro
 50 55 60
 Leu Val Glu Asn Tyr Leu Gly Phe Lys Ser Ile Val Gly Ser Asp Leu
 65 70 75 80
 Ala Lys Asn Phe Ala Glu His Ala Ser Glu Tyr Ala Ser Ile Arg Glu
 85 90 95
 Gly Val Glu Val Lys Ser Val Lys Lys Gly Asp Gly Gly Phe Ile Val
 100 105 110
 Asp Thr Ser Asp Gly Glu Tyr His Ser Lys Tyr Ile Ile Thr Thr
 115 120 125
 Gly Thr Thr His Lys His Leu Gly Val Lys Gly Glu Ala Glu Tyr Phe
 130 135 140
 Gly Lys Gly Val Ser Tyr Cys Ser Thr Cys Asp Gly Tyr Leu Phe Lys
 145 150 155 160
 Asn Lys Asn Val Val Thr Ile Gly Gly Asn Ser Gly Ala Ile Ala
 165 170 175
 Ala Ile Ser Met Ser Glu Tyr Val Lys Asn Ala Thr Ile Val Glu Tyr
 180 185 190
 Met Pro Arg Tyr Met Cys Glu Asn Ala Tyr Ile Glu Glu Ile Lys Lys
 195 200 205
 Arg Lys Ile Pro Tyr Ile Met Asn Ala Gln Val Thr Glu Ile Val Gly
 210 215 220
 Asp Gly Lys Lys Val Thr Gly Val Lys Tyr Lys Asp Arg Ser Ser Gly
 225 230 235 240
 Glu Glu Lys Thr Leu Pro Ala Asp Gly Val Phe Val Tyr Val Gly Leu

245 Ile Pro Gln Thr Ser Phe Leu Lys Asp Ser Gly Val Lys Leu Asp Glu 260 Arg Gly Tyr Ile Ile Val Asp Gly Arg Gln Arg Thr Asn Val Pro Gly 275 Ile Tyr Ala Ala Gly Asp Val Thr Ser Gly Ser Phe Ala Gln Ile Ala 290 Ser Ala Val Gly Asp Gly Cys Lys Ala Ala Leu Ser Leu Tyr Ser Asp 305 Thr Ile Ser Ser Lys Lys	250 265 280 295 310 315	255 270 285 300 315 320
--	--	--

325

<210> 281
<211> 309
<212> PRT
<213> Ureaplasma parvum

<400> 281 Met Asn Gln Glu Val Tyr Asp Leu Val Ile Ile Gly Ala Gly Pro Ala 1 Gly Leu Ala Ala Ala Val Tyr Ala Lys Arg Ser Gly Leu Asn Val Ile 20 Ile Val Glu Lys Gln Phe Pro Gly Gly Lys Ile Ala Leu Thr Ser Asn 35 Val Glu Asn Tyr Leu Gly Ile Asn Ser Ile Pro Gly Pro Glu Leu Ala 50 Tyr Lys Met Tyr Glu Gln Val Leu Asn Leu Asn Val Ser Ile Ile Tyr 65 Glu Ala Ala Asp Glu Ile Ser Leu Lys Glu Lys Tyr Lys Lys Ile Lys 85 Leu Thr Thr Gln Thr Leu Ile Thr Lys Thr Val Ile Ile Ala Thr Gly 100 Thr Glu Asn Arg Arg Leu Asn Ile Leu Gly Glu Leu Glu Phe Glu Asn 115 Lys Gly Ile Ser Tyr Cys Ala Ile Cys Asp Gly Pro Leu Tyr Lys Asn 130 Lys Ala Val Ser Val Ile Gly Ser Gly Asn Ser Ala Val Glu Glu Ala 145 Ile Tyr Leu Ala Thr Ile Ala Lys Glu Val His Leu Ile Ala Asn Lys 165 Pro Gln Phe Lys Ala Glu Gln Gln Leu Val Gln Ile Ala Asn Asn Thr 180 Pro Asn Ile Lys Ile Tyr Tyr Asn Lys Gln Thr Phe Glu Phe Phe Gly 195 His Gln Phe Leu Glu Gly Leu Lys Phe Arg Asp Leu Ile Thr Asn Glu 210 Val Thr Thr Leu Asn Ile Glu Ala Asn Phe Thr Phe Ile Gly Leu Leu 225 Pro Ser Arg Ile Asn Thr Asn Asn Leu Cys Ile Phe Asn Glu Val Asn 245 Gly Phe Ile Thr Thr Asp Lys Asn Met Gln Thr Ser Val Cys Gly Ile 260 Phe Ala Ala Gly Asp Ile Val Asp Lys Asn Val Arg Gln Ile Ala Thr 275 Ala Thr Asn Asp Gly Val Ile Ala Ala Leu Tyr Ala Lys Glu Tyr Ile 290 Thr Arg Asn Asn Trp	5 10 25 40 55 70 85 105 120 135 150 165 180 195 215 230 245 265 280 295 300	15 30 45 60 75 80 95 110 125 140 155 170 190 220 235 255 270 285
---	---	---

305

<210> 282
<211> 318
<212> PRT
<213> Vibrio cholerae

<400> 282

Met Ser Asn Val Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Lys Pro
 20 25 30
 Val Leu Val Thr Gly Met Gln Gln Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Glu Val Glu Asn Trp Pro Gly Asp Ala Glu Gly Leu Thr Gly Pro Ala
 50 55 60
 Leu Met Glu Arg Met Lys Glu His Ala Glu Arg Phe Asp Thr Glu Ile
 65 70 75 80
 Val Phe Asp His Ile Asn Ser Val Asp Leu Ser Ser Arg Pro Phe Arg
 85 90 95
 Leu Thr Gly Asp Ser Gln Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ser
 100 105 110
 Thr Gly Ala Ser Ala Lys Tyr Leu Gly Leu Glu Ser Glu Glu Ala Phe
 115 120 125
 Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 Arg Asn Gln Lys Val Ala Val Val Gly Gly Asn Thr Ala Val Glu
 145 150 155 160
 Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Val His
 165 170 175
 Arg Arg Asp Ser Phe Arg Ser Glu Lys Ile Leu Ile Asp Arg Leu Met
 180 185 190
 Asp Lys Val Ala Asn Gly Asn Ile Val Leu His Thr His Arg Thr Leu
 195 200 205
 Asp Glu Val Leu Gly Asp Glu Met Gly Val Thr Gly Val Arg Leu Lys
 210 215 220
 Asp Thr Gln Ser Asp Met Thr Glu Asn Leu Asp Val Met Gly Val Phe
 225 230 235 240
 Ile Ala Ile Gly His Gln Pro Asn Ser Gln Ile Phe Glu Gly Gln Leu
 245 250 255
 Glu Met Lys Asn Gly Tyr Ile Val Val Lys Ser Gly Leu Glu Gly Asn
 260 265 270
 Ala Thr Gln Thr Ser Ile Glu Gly Val Phe Ala Ala Gly Asp Val Met
 275 280 285
 Asp His Asn Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Ser Gln Gly Lys
 305 310 315

<210> 283
 <211> 321
 <212> PRT
 <213> Xylella fastidiosa

<400> 283
 Met Ser Asp Tyr Pro Ala Ser Ala Lys His Ser Arg Leu Leu Ile Leu
 1 5 10 15
 Gly Ser Gly Pro Ala Gly Trp Thr Ala Ala Val Tyr Ala Ala Arg Ala
 20 25 30
 Asn Leu Gln Pro Val Leu Ile Thr Gly Leu Gln Gln Gly Gly Gln Leu
 35 40 45
 Met Thr Thr Thr Glu Val Asp Asn Trp Pro Gly Asp Ala His Gly Leu
 50 55 60
 Met Gly Pro Asp Leu Met Glu Arg Met Gln Ala His Ala Glu Arg Phe
 65 70 75 80
 Asp Thr Lys Val Ile Phe Asp Gln Ile Tyr Lys Ala Asp Leu Ser Thr
 85 90 95
 Arg Pro Phe Thr Leu Phe Gly Asp Ser Gly Leu Tyr Thr Cys Asp Gly
 100 105 110
 Leu Ile Ile Ala Thr Gly Ala Asn Ala Lys Tyr Leu Gly Ile Pro Ser
 115 120 125
 Glu Glu Ala Phe Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp
 130 135 140
 Gly Phe Tyr Arg Asp Gln Asp Val Ala Val Ile Gly Gly Asn

145	150	155	160
Thr Ala Val Glu Glu Ala Leu Tyr Leu Ser Asn Ile Ala Arg Lys Val			
165	170	175	
Tyr Leu Ile His Arg Arg Asp Lys Leu Arg Ala Glu Lys Ile Met Gln			
180	185	190	
Asn Lys Leu Phe Ser Lys Ala Ala Thr Gly Lys Ile Glu Leu Ile Trp			
195	200	205	
Asn Asn Ala Val Glu Glu Val Leu Gly Asn Asp Ala Ser Val Thr Gly			
210	215	220	
Val Arg Ile Arg Ser Thr Gln Asp Ser Ser Thr Arg Asp Ile Asp Val			
225	230	235	240
Gln Gly Leu Phe Val Ala Ile Gly His His Pro Asn Thr Asp Leu Phe			
245	250	255	
Ala Gly Gln Leu Ala Met Asn Asn Gly Tyr Leu Gln Ile His Ser Gly			
260	265	270	
Thr Ala Gly Asn Val Thr Gln Thr Ser Val Glu Gly Val Phe Ala Ala			
275	280	285	
Gly Asp Val Ala Asp Gln His Tyr Arg Gln Ala Ile Thr Ser Ala Gly			
290	295	300	
Phe Gly Cys Met Ala Ala Leu Asp Ala Glu Arg Phe Leu Asp Lys Gly			
305	310	315	320
Asn			

<210> 284
<211> 318
<212> PRT
<213> Zymomonas mobilis

<400> 284			
Met Ser Ala Asp Pro Ile Ser Thr Arg Val Phe Ile Leu Gly Ser Gly			
1	5	10	15
Pro Ala Gly Leu Thr Ala Ala Ile Tyr Ala Ala Arg Ala Gly Leu Asn			
20	25	30	
Pro Ile Val Ala Gln Gly Leu Gln Pro Gly Gly Gln Leu Thr Ile Thr			
35	40	45	
Thr Glu Val Glu Asn Phe Pro Gly Phe Arg Glu Pro Ile Gln Gly Pro			
50	55	60	
Trp Leu Met Glu Glu Met Gln Ala Gln Ala Glu Asn Val Gly Ala Lys			
65	70	75	80
Leu Val Trp Asp Ile Ile Thr Ser Val Asp Phe Ser Gln Arg Pro Tyr			
85	90	95	
Arg Leu Met Gly Asp Gly Gly Gln Val Tyr Leu Ala Asp Ser Leu Ile			
100	105	110	
Ile Ser Thr Gly Ala Gln Ala Arg Trp Leu Gly Leu Glu Ser Glu Thr			
115	120	125	
Ala Leu Arg Gly Lys Gly Ile Ser Ala Cys Ala Thr Cys Asp Gly Phe			
130	135	140	
Phe Phe Arg Gly Lys Lys Val Val Val Ile Gly Gly Gly Asn Thr Ala			
145	150	155	160
Val Glu Glu Ala Leu Tyr Leu Thr Asn His Ser Pro Glu Val Thr Leu			
165	170	175	
Ile His Arg Arg Asp Ser Leu Arg Ala Glu Lys Ile Met Gln Lys Arg			
180	185	190	
Leu Leu Ala Asn Pro Lys Ile Lys Ile Arg Trp Asn Ser Glu Val Ala			
195	200	205	
Glu Phe Ile Ala Gly Glu Asp Ser Ala Leu Ser Ala Val Lys Leu Lys			
210	215	220	
Asp Thr Lys Thr Gly Glu Glu Ser Leu Leu Glu Thr Glu Gly Ala Phe			
225	230	235	240
Ile Ala Ile Gly His Lys Pro Ala Thr Glu Leu Phe Gln Gly His Leu			
245	250	255	
Lys Leu Asp Asp Glu Gly Tyr Ile Glu Val Thr Pro Gly Thr Thr Gln			
260	265	270	
Thr Ser Ile Lys Gly Ile Phe Ala Cys Gly Asp Val Met Asp Lys His			
275	280	285	

Tyr	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu
290					295					300					
Glu	Ala	Glu	Arg	Phe	Leu	Gly	Glu	Ile	Asp	Phe	Lys	Glu	Asp		
305					310					315					

<210> 285
<211> 122
<212> PRT
<213> Bos taurus

<400>	285														
Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu	Thr	Asp	Ser
1				5					10				15		
Arg	Lys	Phe	Gly	Trp	Glu	Tyr	Ser	Gln	Gln	Val	Arg	His	Ser	Trp	Ala
				20			25						30		
Thr	Met	Thr	Glu	Ala	Ile	Gln	Ser	His	Ile	Gly	Ser	Leu	Ser	Trp	Gly
				35			40					45			
His	Arg	Leu	Ala	Leu	Arg	Glu	Lys	Ala	Val	Thr	Tyr	Val	Asn	Ser	Phe
				50			55				60				
Gly	Glu	Phe	Val	Glu	His	His	Lys	Val	Lys	Ala	Thr	Asn	Glu	Lys	Gly
65				70			75					80			
Gln	Glu	Val	Leu	Tyr	Thr	Ala	Ala	Lys	Phe	Val	Ile	Ala	Thr	Gly	Glu
				85			90					95			
Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Arg	Glu	Tyr	Cys	Ile	Thr
				100			105					110			
Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys						
				115			120								

<210> 286
<211> 511
<212> PRT
<213> Bos taurus

<400>	286														
Met	Ala	Ala	Leu	Arg	Gly	Ala	Ala	Ala	Arg	Phe	Arg	Gly	Arg	Ala	Pro
1				5					10			15			
Gly	Gly	Ala	Arg	Gly	Ala	Ala	Gly	Arg	Gln	Cys	Tyr	Asp	Leu	Leu	Val
				20			25				30				
Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln
				35			40				45				
Leu	Gly	Lys	Lys	Val	Ala	Val	Leu	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln
				50			55				60				
Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile
65				70			75					80			
Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg
				85			90					95			
Asp	Ala	Pro	His	Tyr	Gly	Trp	Gly	Val	Ala	Gln	Ala	Pro	His	Ser	Trp
				100			105					110			
Ala	Thr	Leu	Ala	Asp	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp
				115			120				125				
Gly	His	Arg	Ile	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Val
				130			135				140				
Lys	Ala	Ser	Phe	Val	Asp	Thr	His	Thr	Val	Cys	Gly	Val	Ser	Lys	Gly
145				150					155			160			
Gly	Glu	Glu	Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly
				165			170				175				
Gly	Arg	Pro	Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly
				180			185				190				
Ile	Thr	Ser	Asp	Asp	Leu	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr
				195			200				205				
Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Leu	Leu
				210			215				220				
Thr	Gly	Leu	Gly	Leu	Asp	Thr	Thr	Val	Met	Ile	Arg	Ser	Val	Pro	Leu
225				225			230				235			240	
Arg	Ala	Phe	Asp	Gln	Gln	Met	Ala	Ser	Leu	Val	Thr	Glu	His	Met	Ala

Gly	His	Gly	Thr	Arg	Ile	Leu	Arg	Gly	Cys	Ala	Pro	Glu	Lys	Val	Glu
245								250					255		
260								265					270		
Lys	Leu	Pro	Gly	Gln	Gln	Leu	Arg	Val	Thr	Trp	Val	Asp	Leu	Thr	Ser
275								280					285		
Asp	Arg	Lys	Asp	Ala	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly
290								295					300		
Arg	Val	Pro	Glu	Thr	Ala	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	His
305								310					315		
Thr	Asn	Pro	Val	Thr	Gly	Lys	Ile	Leu	Val	Asp	Ala	Gln	Glu	Thr	Thr
								325					330		
Ser	Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro
								340					345		
Glu	Leu	Thr	Pro	Thr	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Ala	Gln	Arg
								355					360		
Leu	Ser	Gly	Arg	Thr	Ser	Asp	Leu	Met	Asp	Tyr	Ser	Ser	Val	Pro	Thr
								370					375		
Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu
								385					390		
Ala	Ala	Val	Ala	Arg	His	Gly	Glu	Glu	His	Val	Glu	Val	Tyr	His	Ala
								405					410		
Phe	Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Pro	Gln	Arg	Asp	Ala	Ser	Gln
								420					425		
Cys	Tyr	Ile	Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu
								435					440		
Gly	Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Ile	Gln	Gly	Phe
								450					455		
Ala	Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Gln	Gln	Leu	Met	Arg	Thr
								465					470		
Val	Gly	Ile	His	Pro	Thr	Cys	Ala	Glu	Glu	Val	Ala	Lys	Leu	Arg	Ile
								485					490		
Ser	Lys	Arg	Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Cys	Gly	
								500					505		
														510	

<210> 287

<211> 525

<212> PRT

<213> Caenorhabditis elegans

<220>

<221> VARIANT

<222> 524

<223> Xaa = Any Amino Acid

<400> 287

Met	Tyr	Ile	Lys	Gly	Asn	Ala	Val	Gly	Gly	Leu	Lys	Glu	Leu	Lys	Ala
1								5					10		
Leu	Lys	Gln	Asp	Tyr	Leu	Lys	Glu	Trp	Leu	Arg	Asp	His	Thr	Tyr	Asp
								20					25		
Leu	Ile	Val	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu
								35					40		
Ala	Ser	Arg	Leu	Gly	Lys	Lys	Val	Ala	Cys	Leu	Asp	Phe	Val	Lys	Pro
								50					55		
Ser	Pro	Gln	Gly	Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val
								65					70		
Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	Gly	His
								85					90		
Ser	Ile	His	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Lys	Leu	Pro	Glu	Gly	Lys
								100					105		
Val	Glu	His	Gln	Trp	Asn	His	Leu	Arg	Asp	Ser	Val	Gln	Asp	His	Ile
								115					120		
Ala	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Gln	Leu	Arg	Glu	Lys	Thr	Val
								130					135		
Thr	Tyr	Ile	Asn	Ser	Tyr	Gly	Glu	Phe	Thr	Gly	Pro	Phe	Glu	Ile	Ser
								145					150		
Ala	Thr	Asn	Lys	Lys	Lys	Val	Glu	Lys	Leu	Thr	Ala	Asp	Arg	Phe	

165	170	175	
Leu Ile Ser Thr Gly Leu Arg Pro Lys Tyr Pro Glu Ile Pro	Gly Val		
180	185	190	
Lys Glu Tyr Thr Ile Thr Ser Asp Asp Leu Phe Gln Leu Pro	Tyr Ser		
195	200	205	
Pro Gly Lys Thr Leu Cys Val Gly Ala Ser Tyr Val Ser Leu	Glu Cys		
210	215	220	
Ala Gly Phe Leu His Gly Phe Gly Phe Asp Val Thr Val Met	Val Arg		
225	230	240	
Ser Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Glu Arg	Ile Arg		
245	250	255	
Lys His Met Ile Ala Tyr Gly Met Lys Phe Glu Ala Gly Val	Pro Thr		
260	265	270	
Arg Ile Glu Gln Ile Asp Glu Lys Thr Asp Glu Lys Ala Gly	Lys Tyr		
275	280	285	
Arg Val Phe Trp Pro Lys Lys Asn Glu Glu Thr Gly Glu Met	Gln Glu		
290	295	300	
Val Ser Glu Glu Tyr Asn Thr Ile Leu Met Ala Ile Gly Arg	Glu Ala		
305	310	315	320
Val Thr Asp Asp Val Gly Leu Thr Thr Ile Gly Val Glu Arg	Ala Lys		
325	330	335	
Ser Lys Lys Val Leu Gly Arg Arg Glu Gln Ser Thr Thr Ile	Pro Trp		
340	345	350	
Val Tyr Ala Ile Gly Asp Val Leu Glu Gly Thr Pro Glu Leu	Thr Pro		
355	360	365	
Val Ala Ile Gln Ala Gly Arg Val Leu Met Arg Arg Ile Phe	Asp Gly		
370	375	380	
Ala Asn Glu Leu Thr Glu Tyr Asp Gln Ile Pro Thr Thr Val	Phe Thr		
385	390	395	400
Pro Leu Glu Tyr Gly Cys Cys Gly Leu Ser Glu Glu Asp Ala	Met Met		
405	410	415	
Lys Tyr Gly Lys Asp Asn Ile Ile Tyr His Asn Val Phe Asn	Pro		
420	425	430	
Leu Glu Tyr Thr Ile Ser Glu Arg Met Asp Lys Asp His Cys	Tyr Leu		
435	440	445	
Lys Met Ile Cys Leu Arg Asn Glu Glu Lys Val Val Gly Phe	His		
450	455	460	
Ile Leu Thr Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Gly	Ile Ala		
465	470	475	480
Leu Lys Leu Ala Ala Lys Lys Ala Asp Phe Asp Arg Leu Ile	Gly Ile		
485	490	495	
His Pro Thr Val Ala Glu Asn Phe Thr Thr Leu Thr Leu Glu	Lys Lys		
500	505	510	
Glu Gly Asp Glu Glu Leu Gln Ala Ser Gly Cys Xaa Gly			
515	520	525	

<210> 288

<211> 667

<212> PRT

<213> *Caenorhabditis elegans*

<220>

<221> VARIANT

<222> 666

<223> Xaa = Any Amino Acid

<400> 288

Met Lys Ser Leu Thr Glu Leu Phe Gly Cys Phe Lys Arg Gln Pro	Arg		
1	5	10	15
Gln Gln Glu Ala Ser Ser Pro Ala Asn Pro His Val Ser Asp Thr	Leu		
20	25	30	
Ser Met Gly Val Ala Ala Ser Gly Met Pro Pro Pro Lys Arg Pro	Ala		
35	40	45	
Pro Ala Glu Ser Pro Thr Leu Pro Gly Glu Thr Leu Val Asp Ala	Pro		
50	55	60	
Gly Ile Pro Leu Lys Glu Ala Leu Lys Glu Ala Ala Asn Ser Lys	Ile		

65	70	75	80
Val Ile Phe Tyr Asn Ser Ser Asp Glu	Glu Lys Gln Leu Val Glu Phe		
85	90		95
Glu Thr Tyr Leu Asn Ser Leu Lys Glu	Pro Ala Asp Ala Glu Lys Pro		
100	105		110
Leu Glu Ile Pro Glu Ile Lys Lys Leu Gln Val Ser Arg Ala Ser Gln			
115	120		125
Lys Val Ile Gln Tyr Leu Thr Leu His Thr Ser Trp Pro Leu Met Tyr			
130	135		140
Ile Lys Gly Asn Ala Val Gly Gly Leu Lys Glu Leu Lys Ala Leu Lys			
145	150		160
Gln Asp Tyr Leu Lys Glu Trp Leu Arg Asp His Thr Tyr Asp Leu Ile			
165	170		175
Val Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ser			
180	185		190
Arg Leu Gly Lys Lys Val Ala Cys Leu Asp Phe Val Lys Pro Ser Pro			
195	200		205
Gln Gly Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys			
210	215		220
Ile Pro Lys Lys Leu Met His Gln Ala Ser Leu Leu Gly His Ser Ile			
225	230		240
His Asp Ala Lys Lys Tyr Gly Trp Lys Leu Pro Glu Gly Lys Val Glu			
245	250		255
His Gln Trp Asn His Leu Arg Asp Ser Val Gln Asp His Ile Ala Ser			
260	265		270
Leu Asn Trp Gly Tyr Arg Val Gln Leu Arg Glu Lys Thr Val Thr Tyr			
275	280		285
Ile Asn Ser Tyr Gly Glu Phe Thr Gly Pro Phe Glu Ile Ser Ala Thr			
290	295		300
Asn Lys Lys Lys Val Glu Lys Leu Thr Ala Asp Arg Phe Leu Ile			
305	310		320
Ser Thr Gly Leu Arg Pro Lys Tyr Pro Glu Ile Pro Gly Val Lys Glu			
325	330		335
Tyr Thr Ile Thr Ser Asp Asp Leu Phe Gln Leu Pro Tyr Ser Pro Gly			
340	345		350
Lys Thr Leu Cys Val Gly Ala Ser Tyr Val Ser Leu Glu Cys Ala Gly			
355	360		365
Phe Leu His Gly Phe Gly Phe Asp Val Thr Val Met Val Arg Ser Ile			
370	375		380
Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Glu Arg Ile Arg Lys His			
385	390		400
Met Ile Ala Tyr Gly Met Lys Phe Glu Ala Gly Val Pro Thr Arg Ile			
405	410		415
Glu Gln Ile Asp Glu Lys Thr Asp Glu Lys Ala Gly Lys Tyr Arg Val			
420	425		430
Phe Trp Pro Lys Lys Asn Glu Glu Thr Gly Glu Met Gln Glu Val Ser			
435	440		445
Glu Glu Tyr Asn Thr Ile Leu Met Ala Ile Gly Arg Glu Ala Val Thr			
450	455		460
Asp Asp Val Gly Leu Thr Thr Ile Gly Val Glu Arg Ala Lys Ser Lys			
465	470		480
Lys Val Leu Gly Arg Arg Glu Gln Ser Thr Thr Ile Pro Trp Val Tyr			
485	490		495
Ala Ile Gly Asp Val Leu Glu Gly Thr Pro Glu Leu Thr Pro Val Ala			
500	505		510
Ile Gln Ala Gly Arg Val Leu Met Arg Arg Ile Phe Asp Gly Ala Asn			
515	520		525
Glu Leu Thr Glu Tyr Asp Gln Ile Pro Thr Thr Val Phe Thr Pro Leu			
530	535		540
Glu Tyr Gly Cys Cys Gly Leu Ser Glu Glu Asp Ala Met Met Lys Tyr			
545	550		560
Gly Lys Asp Asn Ile Ile Ile Tyr His Asn Val Phe Asn Pro Leu Glu			
565	570		575
Tyr Thr Ile Ser Glu Arg Met Asp Lys Asp His Cys Tyr Leu Lys Met			
580	585		590
Ile Cys Leu Arg Asn Glu Glu Lys Val Val Gly Phe His Ile Leu			
595	600		605

Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala	Leu	Lys
610				615					620						
Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile	His	Pro
625				630					635						640
Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys	Glu	Gly
					645				650					655	
Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys	Xaa	Gly					
					660			665							

<210> 289

<211> 516

<212> PRT

<213> Drosophila melanogaster

<400> 289

Met	Ser	Thr	Ile	Lys	Phe	Leu	Arg	Ser	Ser	Thr	His	Asn	Ala	Leu	Arg	
1				5					10						15	
Ser	Ser	Leu	Gly	Trp	Cys	Arg	Leu	Ala	Ala	Ser	Arg	Pro	Arg	Tyr	Asp	
					20				25					30		
Tyr	Asp	Leu	Val	Val	Leu	Gly	Gly	Ser	Ala	Gly	Leu	Ala	Cys	Ala		
					35				40				45			
Lys	Glu	Ala	Ala	Gly	Cys	Gly	Ala	Arg	Val	Leu	Cys	Phe	Asp	Tyr	Val	
					50				55			60				
Lys	Pro	Thr	Pro	Val	Gly	Thr	Lys	Trp	Gly	Ile	Gly	Gly	Thr	Cys	Val	
					65				70			75		80		
Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	
									85			90		95		
Gly	Glu	Ala	Val	His	Glu	Ala	Val	Ala	Tyr	Gly	Trp	Asn	Val	Asp	Asp	
					100				105			110				
Thr	Asn	Ile	Arg	Pro	Asp	Trp	Arg	Lys	Leu	Val	Arg	Ser	Val	Gln	Asn	
					115				120			125				
His	Ile	Lys	Ser	Val	Asn	Trp	Val	Thr	Arg	Val	Asp	Leu	Arg	Asp	Lys	
					130				135			140				
Lys	Val	Glu	Tyr	Val	Asn	Ser	Met	Ala	Thr	Phe	Arg	Asp	Ser	His	Thr	
					145				150			155		160		
Ile	Glu	Tyr	Val	Ala	Met	Pro	Gly	Ala	Glu	His	Arg	Gln	Val	Thr	Ser	
					165				170			175				
Glu	Tyr	Val	Val	Ala	Val	Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Asp	Ile		
					180				185			190				
Pro	Gly	Ala	Val	Glu	Leu	Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Ser	Tyr	
					195				200			205				
Glu	Arg	Glu	Pro	Gly	Arg	Thr	Leu	Val	Val	Gly	Ala	Gly	Tyr	Val	Gly	
					210				215			220				
Leu	Glu	Cys	Ala	Cys	Phe	Leu	Lys	Gly	Leu	Gly	Tyr	Glu	Pro	Thr	Val	
					225				230			235		240		
Met	Val	Arg	Ser	Ile	Val	Leu	Arg	Gly	Phe	Asp	Arg	Gln	Met	Ser	Glu	
					245				250			255				
Leu	Leu	Ala	Ala	Met	Met	Thr	Glu	Arg	Gly	Ile	Pro	Phe	Leu	Gly	Thr	
					260				265			270				
Thr	Ile	Pro	Lys	Ala	Val	Glu	Arg	Gln	Ala	Asp	Gly	Arg	Leu	Leu	Val	
					275				280			285				
Arg	Tyr	Arg	Asn	Thr	Thr	Gln	Met	Asp	Gly	Ser	Asp	Val	Phe	Asp		
					290				295			300				
Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Lys	Gly	Leu	Ile	Glu	Asp	Leu	Asn	
					305				310			315		320		
Leu	Asp	Ala	Ala	Gly	Val	Lys	Thr	His	Asp	Asp	Lys	Ile	Val	Val	Asp	
					325				330			335				
Ala	Ala	Glu	Ala	Thr	Ser	Val	Pro	His	Ile	Phe	Ala	Val	Gly	Asp	Ile	
					340				345			350				
Ile	Tyr	Gly	Arg	Pro	Glu	Leu	Thr	Pro	Val	Ala	Ile	Leu	Ser	Gly	Arg	
					355				360			365				
Leu	Leu	Ala	Arg	Arg	Leu	Phe	Ala	Gly	Ser	Thr	Gln	Leu	Met	Asp	Tyr	
					370				375			380				
Ala	Asp	Val	Ala	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Ser	Cys	Val	
					385				390			395		400		
Gly	Met	Ser	Glu	Glu	Thr	Ala	Ile	Glu	Leu	Arg	Gly	Ala	Asp	Asn	Ile	

Glu	Val	Phe	His	405	Gly	Tyr	Tyr	Lys	Pro	Thr	Glu	Phe	Phe	Ile	415	Pro	Gln
				420						425					430		
Lys	Ser	Val	Arg		His	Cys	Tyr	Leu	Lys	Ala	Val	Ala	Glu	Val	Ser	Gly	
				435						440					445		
Asp	Gln	Lys	Ile	Leu	Gly	Leu	His	Tyr	Ile	Gly	Pro	Val	Ala	Gly	Glu		
				450						455					460		
Val	Ile	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Thr	Gly	Leu	Thr	Val	Lys		
				465						470					475		480
Thr	Leu	Leu	Asn	Thr	Val	Gly	Ile	His	Pro	Thr	Thr	Ala	Glu	Glu	Phe		
				485						490					495		
Thr	Arg	Leu	Ser	Ile	Thr	Lys	Arg	Ser	Gly	Arg	Asp	Pro	Thr	Pro	Ala		
				500					505						510		
Ser	Cys	Cys	Ser														
				515													

<210> 290
<211> 524
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> 523
<223> Xaa = Any Amino Acid

<400>	290																
Met	Ala	Ala	Met	Ala	Val	Ala	Leu	Arg	Gly	Leu	Gly	Gly	Arg	Phe	Arg		
1					5					10					15		
Trp	Arg	Thr	Gln	Ala	Val	Ala	Gly	Gly	Val	Arg	Gly	Ala	Ala	Arg	Gly		
					20					25					30		
Ala	Ala	Ala	Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly	Gly	Gly		
					35					40					45		
Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Arg	Lys		
					50					55					60		
Val	Ser	Val	Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr	Arg	Trp		
					65					70					75		80
Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu		
					85					90					95		
Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala	Pro	Asn		
					100					105					110		
Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg	Lys	Met		
					115					120					125		
Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg		
					130					135					140		
Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser		
					145					150					155		160
Phe	Val	Asp	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly	Lys	Glu		
					165					170					175		
Ile	Leu	Leu	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly	Arg	Pro		
					180					185					190		
Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser		
					195					200					205		
Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val		
					210					215					220		
Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile		
					225					230					235		240
Gly	Leu	Asp	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe		
					245					250					255		
Asp	Gln	Gln	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser	His	Gly		
					260					265					270		
Thr	Arg	Phe	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg	Leu	Pro		
					275					280					285		
Asp	Gly	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly	Lys	Glu		
					290					295					300		
Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro		

305	310	315	320												
Asp	Thr	Arg	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr	Ser	Pro
325	330	335													
Asp	Thr	Gln	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser	Val	Pro
340	345	350													
His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu	Leu	Thr
355	360	365													
Pro	Ile	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu	Phe	Gly
370	375	380													
Gly	Ser	Ser	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe
385	390	395	400												
Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val
405	410	415													
Ala	Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys
420	425	430													
Pro	Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val
435	440	445													
Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His
450	455	460													
Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly
465	470	475	480												
Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile
485	490	495													
His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg
500	505	510													
Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly				
515	520														

<210> 291
 <211> 497
 <212> PRT
 <213> Homo sapiens

<400> 291
Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
85 90 95
Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
100 105 110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
115 120 125
Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
130 135 140
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
145 150 155 160
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
165 170 175
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
180 185 190
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
195 200 205
Leu Ala Gly Ile Gly Leu Asn Val Thr Val Met Val Arg Ser Ile Leu
210 215 220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
225 230 235 240
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
245 250 255

Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln
 260 265 270
 Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met
 275 280 285
 Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
 385 390 395 400
 Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg
 405 410 415
 Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn
 420 425 430
 Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
 435 440 445
 Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln
 450 455 460
 Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr
 465 470 475 480
 Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Arg Ile Leu Gln Ala Gly
 485 490 495
 Cys

<210> 292
 <211> 497
 <212> PRT
 <213> Homo sapien

<400> 292
 Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Pro Ala
 20 25 30
 Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Gly Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
 85 90 95
 Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
 130 135 140
 Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu

210	215	220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met		
225	230	240
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val		
245	250	255
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln		
260	265	270
Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met		
275	280	285
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr		
290	295	300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp		
305	310	315
320		
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu		
325	330	335
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu		
340	345	350
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu		
355	360	365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly		
370	375	380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu		
385	390	395
400		
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg		
405	410	415
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn		
420	425	430
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val		
435	440	445
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln		
450	455	460
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr		
465	470	475
480		
Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly		
485	490	495

Cys

<210> 293
<211> 521
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> 520
<223> Xaa = Any Amino Acid

<400> 293
Met Ala Val Ala Leu Arg Gly Leu Gly Arg Phe Arg Trp Arg Thr
1 5 10 15
Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly Ala Ala Ala
20 25 30
Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Ser Gly Gly
35 40 45
Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys Val Ala Val
50 55 60
Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp Gly Leu Gly
65 70 75 80
Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln
85 90 95
Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn Tyr Gly Trp
100 105 110
Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met Ala Glu Ala
115 120 125
Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg Val Gln Leu

130	135	140
Gln	Asp Arg Lys Val	Lys Tyr Phe Asn Ile Lys Ala Ser Phe Val Asp
145	150	155 160
Glu His Thr Val Cys Gly Val Ala Lys	Gly Gly Lys Glu Ile Leu Leu	
165	170	175
Ser Ala Asp His Ile Ile Ile Ala	Thr Gly Gly Arg Pro Arg Tyr Pro	
180	185	190
Thr His Ile Glu Gly Ala Leu	Glu Tyr Gly Ile Thr Ser Asp Asp Ile	
195	200	205
Phe Trp Leu Lys Glu Ser Pro	Gly Lys Thr Leu Val Val Gly Ala Ser	
210	215	220
Tyr Val Ala Leu Glu Cys Ala	Gly Phe Leu Thr Gly Ile Gly Leu Asp	
225	230	235 240
Thr Thr Ile Met Met Arg Ser Ile	Pro Leu Arg Gly Phe Asp Gln Gln	
245	250	255
Met Ser Ser Met Val Ile Glu His	Met Ala Ser His Gly Thr Arg Phe	
260	265	270
Leu Arg Gly Cys Ala Pro Ser Arg	Val Arg Arg Leu Pro Asp Gly Gln	
275	280	285
Leu Gln Val Thr Trp Glu Asp	Ser Thr Thr Gly Lys Glu Asp Thr Gly	
290	295	300
Thr Phe Asp Thr Val Leu Trp Ala	Ile Gly Arg Val Pro Asp Thr Arg	
305	310	315 320
Ser Leu Asn Leu Glu Lys Ala	Gly Val Asp Thr Ser Pro Asp Thr Gln	
325	330	335
Lys Ile Leu Val Asp Ser Arg	Glu Ala Thr Ser Val Pro His Ile Tyr	
340	345	350
Ala Ile Gly Asp Val Val Glu	Gly Arg Pro Glu Leu Thr Pro Ile Ala	
355	360	365
Ile Met Ala Gly Arg Leu	Leu Val Gln Arg Leu Phe Gly Gly Ser Ser	
370	375	380
Asp Leu Met Asp Tyr Asp Asn Val Pro	Thr Thr Val Phe Thr Pro Leu	
385	390	395 400
Glu Tyr Gly Cys Val Gly Leu Ser	Glu Glu Ala Val Ala Arg His	
405	410	415
Gly Gln Glu His Val Glu Val	Tyr His Ala His Tyr Lys Pro Leu Glu	
420	425	430
Phe Thr Val Ala Gly Arg Asp	Ala Ser Gln Cys Tyr Val Lys Met Val	
435	440	445
Cys Leu Arg Glu Pro Pro Gln	Leu Val Leu Gly Leu His Phe Leu Gly	
450	455	460
Pro Asn Ala Gly Glu Val	Thr Gln Gly Phe Ala Leu Gly Ile Lys Cys	
465	470	475 480
Gly Ala Ser Tyr Ala Gln Val Met	Arg Thr Val Gly Ile His Pro Thr	
485	490	495
Cys Ser Glu Glu Val Val Lys	Leu Arg Ile Ser Lys Arg Ser Gly Leu	
500	505	510
Asp Pro Thr Val Thr Gly Cys Xaa	Gly	
515	520	

<210> 294
<211> 579
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> 578
<223> Xaa = Any Amino Acid

<400> 294
Ala Glu Arg Val Val Ile Phe Ser Lys Ser Tyr Cys Pro His Ser Thr
1 5 10 15
Arg Val Lys Glu Leu Phe Ser Ser Leu Gly Val Glu Cys Asn Val Leu
20 25 30
Glu Leu Asp Gln Val Asp Asp Gly Ala Arg Val Gln Glu Val Leu Ser

35	40	45
Glu Ile Thr Asn Gln Lys	Thr Val Pro Asn Ile Phe Val Asn Lys Val	
50	55	60
His Val Gly Gly Cys Asp	Gln Thr Phe Gln Ala Tyr Gln Ser Gly Leu	
65	70	75
Leu Gln Lys Leu Leu Gln Glu Asp	Leu Ala Tyr Asp Tyr Asp Leu Ile	
85	90	95
Ile Ile Gly Gly Ser Gly Gly	Leu Ser Cys Ala Lys Glu Ala Ala	
100	105	110
Ile Leu Gly Lys Lys Val Met	Val Leu Asp Phe Val Val Pro Ser Pro	
115	120	125
Gln Gly Thr Ser Trp Gly	Leu Gly Gly Thr Cys Val Asn Val Gly Cys	
130	135	140
Ile Pro Lys Lys Leu Met His	Gln Ala Ala Leu Leu Gly Gln Ala Leu	
145	150	155
Cys Asp Ser Arg Lys	Phe Gly Trp Glu Tyr Asn Gln Gln Val Arg His	
165	170	175
Asn Trp Glu Thr Met Thr Lys	Ala Ile Gln Asn His Ile Ser Ser Leu	
180	185	190
Asn Trp Gly Tyr Arg Leu Ser	Leu Arg Glu Lys Ala Val Ala Tyr Val	
195	200	205
Asn Ser Tyr Gly Glu Phe Val	Glu His His Lys Ile Lys Ala Thr Asn	
210	215	220
Lys Lys Gly Gln Glu Thr	Tyr Tyr Ala Ala Gln Phe Val Ile Ala	
225	230	235
Thr Gly Glu Arg Pro Arg	Tyr Tyr Leu Gly Ile Gln Gly Asp Lys Glu Tyr	
245	250	255
Cys Ile Thr Ser Asp Asp	Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys	
260	265	270
Thr Leu Val Val Gly Ala Ser	Tyr Val Ala Leu Glu Cys Ala Gly Phe	
275	280	285
Leu Ala Gly Phe Gly	Leu Asp Val Thr Val Met Val Arg Ser Ile Leu	
290	295	300
Leu Arg Gly Phe Asp	Gln Glu Met Ala Glu Lys Val Gly Ser Tyr Met	
305	310	315
Glu Gln His Gly Val Lys	Phe Leu Arg Lys Phe Ile Pro Val Met Val	
325	330	335
Gln Gln Leu Glu Lys	Gly Ser Pro Gly Lys Leu Lys Val Leu Ala Lys	
340	345	350
Ser Thr Glu Gly Thr Glu	Thr Ile Glu Gly Val Tyr Asn Thr Val Leu	
355	360	365
Leu Ala Ile Gly Arg Asp	Ser Cys Thr Arg Lys Ile Gly Leu Glu Lys	
370	375	380
Ile Gly Val Lys Ile Asn	Glu Lys Ser Gly Lys Ile Pro Val Asn Asp	
385	390	395
Val Glu Gln Thr Asn Val Pro	Tyr Val Tyr Ala Val Gly Asp Ile Leu	
405	410	415
Glu Asp Lys Pro	Glu Leu Thr Pro Val Ala Ile Gln Ser Gly Lys Leu	
420	425	430
Leu Ala Gln Arg Leu Phe	Gly Ala Ser Leu Glu Lys Cys Asp Tyr Ile	
435	440	445
Asn Val Pro Thr Thr Val	Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly	
450	455	460
Leu Ser Glu Glu Lys	Ala Ile Glu Val Tyr Lys Glu Asn Leu Glu	
465	470	475
Ile Tyr His Thr Leu Phe	Trp Pro Leu Glu Trp Thr Val Ala Gly Arg	
485	490	495
Glu Asn Asn Thr Cys	Tyr Ala Lys Ile Ile Cys Asn Lys Phe Asp His	
500	505	510
Asp Arg Val Ile Gly Phe	His Ile Leu Gly Pro Asn Ala Gly Glu Val	
515	520	525
Thr Gln Gly Phe Ala Ala	Ala Ala Met Lys Cys Gly Leu Thr Lys Gln Leu	
530	535	540
Leu Asp Asp Thr Ile Gly	Ile His Pro Thr Cys Gly Glu Val Phe Thr	
545	550	555
Thr Leu Glu Ile Thr Lys	Ser Ser Gly Leu Asp Ile Thr Gln Lys Gly	
565	570	575

Cys Xaa Gly

<210> 295
<211> 524
<212> PRT
<213> Homo sapien

<220>
<221> VARIANT
<222> 523
<223> Xaa = Any Amino Acid

<400> 295
Met Ala Ala Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg
1 5 10 15
Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly
20 25 30
Ala Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Gly
35 40 45
Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys
50 55 60
Val Ala Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp
65 70 75 80
Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu
85 90 95
Met His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn
100 105 110
Tyr Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met
115 120 125
Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg
130 135 140
Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser
145 150 155 160
Phe Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly Lys Glu
165 170 175
Ile Leu Leu Ser Ala Asp His Ile Ile Ile Ala Thr Gly Gly Arg Pro
180 185 190
Arg Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile Thr Ser
195 200 205
Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val
210 215 220
Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile
225 230 235 240
Gly Leu Asp Thr Thr Ile Met Met Arg Ser Ile Pro Leu Arg Gly Phe
245 250 255
Asp Gln Gln Met Ser Ser Met Val Ile Glu His Met Ala Ser His Gly
260 265 270
Thr Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Arg Arg Leu Pro
275 280 285
Asp Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly Lys Glu
290 295 300
Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro
305 310 315 320
Asp Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr Ser Pro
325 330 335
Asp Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser Val Pro
340 345 350
His Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu Leu Thr
355 360 365
Pro Ile Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu Phe Gly
370 375 380
Gly Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr Val Phe
385 390 395 400
Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Ala Val
405 410 415

Ala Arg His Gly Gln Glu His Val Glu Val Tyr His Ala His Tyr Lys
 420 425 430
 Pro Leu Glu Phe Thr Val Ala Gly Arg Asp Ala Ser Gln Cys Tyr Val
 435 440 445
 Lys Met Val Cys Leu Arg Glu Pro Pro Gln Leu Val Leu Gly Leu His
 450 455 460
 Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Leu Gly
 465 470 475 480
 Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Arg Thr Val Gly Ile
 485 490 495
 His Pro Thr Cys Ser Glu Glu Val Val Lys Leu Arg Ile Ser Lys Arg
 500 505 510
 Ser Gly Leu Asp Pro Thr Val Thr Gly Cys Xaa Gly
 515 520

<210> 296

<211> 577

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 576

<223> Xaa = Any Amino Acid

<400> 296

Arg Val Val Ile Phe Ser Lys Ser Tyr Cys Pro His Ser Thr Arg Val
 1 5 10 15
 Lys Glu Leu Phe Ser Ser Leu Gly Val Glu Cys Asn Val Leu Glu Leu
 20 25 30
 Asp Gln Val Asp Asp Gly Ala Arg Val Gln Glu Val Leu Ser Glu Ile
 35 40 45
 Thr Asn Gln Lys Thr Val Pro Asn Ile Phe Val Asn Lys Val His Val
 50 55 60
 Gly Gly Cys Asp Gln Thr Phe Gln Ala Tyr Gln Ser Gly Leu Leu Gln
 65 70 75 80
 Lys Leu Leu Gln Glu Asp Leu Ala Tyr Asp Tyr Asp Leu Ile Ile Ile
 85 90 95
 Gly Gly Gly Ser Gly Gly Leu Ser Cys Ala Lys Glu Ala Ala Ile Leu
 100 105 110
 Gly Lys Lys Val Met Val Leu Asp Phe Val Val Pro Ser Pro Gln Gly
 115 120 125
 Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro
 130 135 140
 Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu Cys Asp
 145 150 155 160
 Ser Arg Lys Phe Gly Trp Glu Tyr Asn Gln Gln Val Arg His Asn Trp
 165 170 175
 Glu Thr Met Thr Lys Ala Ile Gln Asn His Ile Ser Ser Leu Asn Trp
 180 185 190
 Gly Tyr Arg Leu Ser Leu Arg Glu Lys Ala Val Ala Tyr Val Asn Ser
 195 200 205
 Tyr Gly Glu Phe Val Glu His His Lys Ile Lys Ala Thr Asn Lys Lys
 210 215 220
 Gly Gln Glu Thr Tyr Tyr Thr Ala Ala Gln Phe Val Ile Ala Thr Gly
 225 230 235 240
 Glu Arg Pro Arg Tyr Leu Gly Ile Gln Gly Asp Lys Glu Tyr Cys Ile
 245 250 255
 Thr Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys Pro Leu
 260 265 270
 Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Ala
 275 280 285
 Gly Phe Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu Leu Arg
 290 295 300
 Gly Phe Asp Gln Glu Met Ala Glu Lys Val Gly Ser Tyr Met Glu Gln
 305 310 315 320

His Gly Val Lys Phe Leu Arg Lys Phe Ile Pro Val Met Val Gln Gln
 325 330 335
 Leu Glu Lys Gly Ser Pro Gly Lys Leu Lys Val Leu Ala Lys Ser Thr
 340 345 350
 Glu Gly Thr Glu Thr Ile Glu Gly Val Tyr Asn Thr Val Leu Leu Ala
 355 360 365
 Ile Gly Arg Asp Ser Cys Thr Arg Lys Ile Gly Leu Glu Lys Ile Gly
 370 375 380
 Val Lys Ile Asn Glu Lys Ser Gly Lys Ile Pro Val Asn Asp Val Glu
 385 390 395 400
 Gln Thr Asn Val Pro Tyr Val Tyr Ala Val Gly Asp Ile Leu Glu Asp
 405 410 415
 Lys Pro Glu Leu Thr Pro Val Ala Ile Gln Ser Gly Lys Leu Leu Ala
 420 425 430
 Gln Arg Leu Phe Gly Ala Ser Leu Glu Lys Cys Asp Tyr Ile Asn Val
 435 440 445
 Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly Leu Ser
 450 455 460
 Glu Glu Lys Ala Ile Glu Val Tyr Lys Lys Glu Asn Leu Glu Ile Tyr
 465 470 475 480
 His Thr Leu Phe Trp Pro Leu Glu Trp Thr Val Ala Gly Arg Glu Asn
 485 490 495
 Asn Thr Cys Tyr Ala Lys Ile Ile Cys Asn Lys Phe Asp His Asp Arg
 500 505 510
 Val Ile Gly Phe His Ile Leu Gly Pro Asn Ala Gly Glu Val Thr Gln
 515 520 525
 Gly Phe Ala Ala Ala Met Lys Cys Gly Leu Thr Lys Gln Leu Leu Asp
 530 535 540
 Asp Thr Ile Gly Ile His Pro Thr Cys Gly Glu Val Phe Thr Thr Leu
 545 550 555 560
 Glu Ile Thr Lys Ser Ser Gly Leu Asp Ile Thr Gln Lys Gly Cys Xaa
 565 570 575
 Gly

<210> 297
 <211> 494
 <212> PRT
 <213> Homo sapien

<400> 297
 Met Glu Asp Gln Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly
 1 5 10 15
 Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly
 20 25 30
 Arg Lys Val Ala Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr
 35 40 45
 Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys
 50 55 60
 Lys Leu Met His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala
 65 70 75 80
 Pro Asn Tyr Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg
 85 90 95
 Lys Met Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly
 100 105 110
 His Arg Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys
 115 120 125
 Ala Ser Phe Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly
 130 135 140
 Lys Glu Ile Leu Leu Ser Ala Asp His Ile Ile Ile Ala Thr Gly Gly
 145 150 155 160
 Arg Pro Arg Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile
 165 170 175
 Thr Ser Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu
 180 185 190
 Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr

	195	200	205
Gly Ile Gly Leu Asp Thr Thr	210	215	Ile Met Met Arg Ser Ile Pro Leu Arg
Gly Phe Asp Gln Gln Met Ser Ser Met Val Ile		220	Glu His Met Ala Ser
225 230 His Gly Thr Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Arg Arg		235 250	240 255
Leu Pro Asp Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly	260	265	270
Lys Glu Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg	275	280	285
Val Pro Asp Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr	290	295	300
Ser Pro Asp Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser	305	310	320
315 Val Pro His Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu		330	335
Leu Thr Pro Thr Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu	340	345	350
Phe Gly Gly Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr	355	360	365
370 Val Phe Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Glu		375	380
Ala Val Ala Arg His Gly Gln Glu His Val Glu Val Tyr His Ala His	385	390	400
Tyr Lys Pro Leu Glu Phe Thr Val Ala Gly Arg Asp Ala Ser Gln Cys	405	410	415
420 Tyr Val Lys Met Val Cys Leu Arg Glu Pro Pro Gln Leu Val Leu Gly		425	430
435 Leu His Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala		440	445
450 Leu Gly Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Arg Thr Val		455	460
465 Gly Ile His Pro Thr Cys Ser Glu Glu Val Val Lys Leu Arg Ile Ser		470	475 480
Lys Arg Ser Gly Leu Asp Pro Thr Val Thr Gly Cys Cys Gly	485	490	

<210> 298
<211> 521
<212> PRT
<213> Homo sapien

<400> 298

Met Ala Ala Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg	1	5	10 15
Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly		20 25	30
Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Ser	35	40	45
Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys Val	50	55	60
Ser Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp Gly	65	70 75	80
Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu Met	85	90	95
His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn Tyr	100	105	110
Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met Ala	115	120	125
Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg Val	130	135	140
Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser Phe	145	150 155	160
Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly Lys Glu Ile	165	170	175

Leu Leu Ser Ala Asp His Ile Ile Ala Thr Gly Gly Arg Pro Arg
 180 185 190
 Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile Thr Ser Asp
 195 200 205
 Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val Gly
 210 215 220
 Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile Gly
 225 230 235 240
 Leu Asp Thr Thr Ile Met Met Arg Ser Ile Pro Leu Arg Gly Phe Asp
 245 250 255
 Gln Gln Met Ser Ser Met Val Ile Glu His Met Ala Ser His Gly Thr
 260 265 270
 Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Lys Arg Leu Pro Asp
 275 280 285
 Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly Lys Glu Asp
 290 295 300
 Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro Asp
 305 310 315 320
 Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr Ser Pro Asp
 325 330 335
 Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser Val Pro His
 340 345 350
 Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu Leu Thr Pro
 355 360 365
 Thr Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu Phe Gly Gly
 370 375 380
 Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr Val Phe Thr
 385 390 395 400
 Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Ala Val Ala
 405 410 415
 Arg His Gly Gln Glu His Val Glu Val Tyr His Ala His Tyr Lys Pro
 420 425 430
 Leu Glu Phe Thr Val Ala Gly Arg Asp Ala Ser Gln Cys Tyr Val Lys
 435 440 445
 Met Val Cys Leu Arg Glu Pro Pro Gln Leu Val Leu Gly Leu His Phe
 450 455 460
 Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Leu Gly Ile
 465 470 475 480
 Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Arg Thr Val Gly Ile His
 485 490 495
 Pro Thr Cys Ser Glu Glu Val Val Lys Leu Arg Ile Ser Lys Arg Ser
 500 505 510
 Gly Leu Asp Pro Thr Val Thr Gly Cys
 515 520

<210> 299
 <211> 549
 <212> PRT
 <213> Homo sapien

<400> 299
 Met Ser Cys Glu Asp Gly Arg Ala Leu Glu Gly Thr Leu Ser Glu Leu
 1 5 10 15
 Ala Ala Glu Thr Asp Leu Pro Val Val Phe Val Lys Gln Arg Lys Ile
 20 25 30
 Gly Gly His Gly Pro Thr Leu Lys Ala Tyr Gln Glu Gly Arg Leu Gln
 35 40 45
 Lys Leu Leu Lys Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp
 50 55 60
 Tyr Asp Leu Ile Ile Ile Gly Gly Ser Gly Leu Ala Ala Ala
 65 70 75 80
 Lys Glu Ala Ala Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Val
 85 90 95
 Thr Pro Thr Pro Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val
 100 105 110
 Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu

	115	120	125
Gly Gln Ala Leu Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu			
130	135	140	
Thr Val Lys His Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His			
145	150	155	160
Ile Gly Ser Leu Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys			
165	170	175	
Val Val Tyr Glu Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile			
180	185	190	
Lys Ala Thr Asn Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg			
195	200	205	
Phe Leu Ile Ala Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly			
210	215	220	
Asp Lys Glu Tyr Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr			
225	230	235	240
Cys Pro Gly Lys Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu			
245	250	255	
Cys Ala Gly Phe Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val			
260	265	270	
Arg Ser Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile			
275	280	285	
Gly Glu His Met Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val			
290	295	300	
Pro Ile Lys Val Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg			
305	310	315	320
Val Val Ala Gln Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr			
325	330	335	
Asn Thr Val Met Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile			
340	345	350	
Gly Leu Glu Thr Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile			
355	360	365	
Pro Val Thr Asp Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile			
370	375	380	
Gly Asp Ile Leu Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln			
385	390	395	400
Ala Gly Arg Leu Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys			
405	410	415	
Cys Asp Tyr Glu Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr			
420	425	430	
Gly Ala Cys Gly Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu			
435	440	445	
Glu Asn Ile Glu Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr			
450	455	460	
Ile Pro Ser Arg Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn			
465	470	475	480
Thr Lys Asp Asn Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn			
485	490	495	
Ala Gly Glu Val Thr Gln Gly Phe Ala Ala Leu Lys Cys Gly Leu			
500	505	510	
Thr Lys Lys Gln Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala			
515	520	525	
Glu Val Phe Thr Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile			
530	535	540	
Leu Gln Ala Gly Cys			
545			

<210> 300

<211> 613

<212> PRT

<213> Mus musculus

<220>

<221> VARIANT

<222> 612

<223> Xaa = Any Amino Acid

<400> 300

Met Pro Val Asp Asp Cys Trp Leu Tyr Phe Pro Ala Ser Arg Gly Arg
1 5 10 15
Thr Phe Val Gln Thr Val Trp Val Ala Pro Thr Cys Pro Asn Cys Cys
20 25 30
Trp Phe Pro Gly Phe Leu Pro Pro Val Pro Arg Pro Pro His Val Pro
35 40 45
Arg Val Leu Leu Arg Gly Pro Arg Gly Ala Val Leu Pro Ala Ser Arg
50 55 60
Pro Ser Lys Thr Leu Pro Ser Ser Ser Gln Thr Pro Cys Pro Thr Asp
65 70 75 80
Pro Cys Ile Cys Pro Pro Pro Ser Thr Pro Asp Ser Arg Gln Glu Lys
85 90 95
Asn Thr Gln Ser Glu Leu Pro Asn Lys Lys Gly Gln Leu Gln Lys Leu
100 105 110
Pro Thr Met Asn Gly Ser Lys Asp Pro Pro Gly Ser Tyr Asp Phe Asp
115 120 125
Leu Ile Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu
130 135 140
Ala Ala Lys Phe Asp Lys Lys Val Leu Val Leu Asp Phe Val Thr Pro
145 150 155 160
Thr Pro Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val
165 170 175
Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln
180 185 190
Ala Leu Lys Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Asp Thr Val
195 200 205
Lys His Asp Trp Glu Lys Met Thr Glu Ser Val Gln Ser His Ile Gly
210 215 220
Ser Leu Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val
225 230 235 240
Tyr Glu Asn Ala Tyr Gly Arg Phe Ile Gly Pro His Arg Ile Val Ala
245 250 255
Thr Asn Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu
260 265 270
Ile Ala Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys
275 280 285
Glu Tyr Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro
290 295 300
Gly Lys Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala
305 310 315 320
Gly Phe Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser
325 330 335
Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu
340 345 350
His Met Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr
355 360 365
Lys Ile Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Thr
370 375 380
Ala Gln Ser Thr Asn Ser Glu Glu Thr Ile Glu Gly Glu Phe Asn Thr
385 390 395 400
Val Leu Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu
405 410 415
Glu Thr Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val
420 425 430
Thr Asp Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp
435 440 445
Ile Leu Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly
450 455 460
Arg Leu Leu Ala Gln Arg Leu Tyr Gly Gly Ser Asn Val Lys Cys Asp
465 470 475 480
Tyr Asp Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys
485 490 495
Cys Gly Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn
500 505 510
Ile Glu Val Tyr His Ser Phe Phe Trp Pro Leu Glu Trp Thr Val Pro
515 520 525

Ser Arg Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Leu Lys
 530 535 540
 Asp Asp Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly
 545 550 555 560
 Glu Val Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys
 565 570 575
 Gln Gln Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile
 580 585 590
 Phe Thr Thr Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln
 595 600 605
 Ser Gly Cys Xaa Gly
 610

<210> 301
 <211> 310
 <212> PRT
 <213> Mus musculus

<400> 301
 Met Asn Gly Ser Lys Asp Pro Pro Gly Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
 20 25 30
 Lys Phe Asp Lys Lys Val Leu Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Lys Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Asp Thr Val Lys His
 85 90 95
 Asp Trp Glu Lys Met Thr Glu Ser Val Gln Ser His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Arg Phe Ile Gly Pro His Arg Ile Val Ala Thr Asn
 130 135 140
 Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr Lys Ile
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Thr Ala Gln
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Gly Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn
 305 310

<210> 302
 <211> 613
 <212> PRT
 <213> Mus musculus

<400> 302

Met Ser Ser Pro Pro Gly Arg Arg Ala Arg Leu Ala Ser Pro Gly Thr
1 5 10 15
Ser Arg Pro Ser Ser Glu Ala Arg Glu Glu Leu Arg Arg Arg Leu Arg
20 25 30
Asp Leu Ile Glu Gly Asn Arg Val Met Ile Phe Ser Lys Ser Tyr Cys
35 40 45
Pro His Ser Thr Arg Val Lys Glu Leu Phe Ser Ser Leu Gly Val Val
50 55 60
Tyr Asn Ile Leu Glu Leu Asp Gln Val Asp Asp Gly Ala Ser Val Gln
65 70 75 80
Glu Val Leu Thr Glu Ile Ser Asn Gln Lys Thr Val Pro Asn Ile Phe
85 90 95
Val Asn Lys Val His Val Gly Gly Cys Asp Arg Thr Phe Gln Ala His
100 105 110
Gln Asn Gly Leu Leu Gln Lys Leu Leu Gln Asp Asp Ser Ala His Asp
115 120 125
Tyr Asp Leu Ile Ile Gly Gly Ser Gly Gly Leu Ser Cys Ala
130 135 140
Lys Glu Ala Ala Asn Leu Gly Lys Lys Val Met Val Leu Asp Phe Val
145 150 155 160
Val Pro Ser Pro Gln Gly Thr Thr Trp Gly Leu Gly Thr Cys Val
165 170 175
Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu
180 185 190
Gly His Ala Leu Gln Asp Ala Lys Lys Tyr Gly Trp Glu Tyr Asn Gln
195 200 205
Gln Val Lys His Asn Trp Glu Ala Met Thr Glu Ala Ile Gln Ser His
210 215 220
Ile Gly Ser Leu Asn Trp Gly Tyr Arg Val Thr Leu Arg Glu Lys Gly
225 230 235 240
Val Thr Tyr Val Asn Ser Phe Gly Glu Phe Val Asp Leu His Lys Ile
245 250 255
Lys Ala Thr Asn Lys Lys Gly Gln Glu Thr Phe Tyr Thr Ala Ser Lys
260 265 270
Phe Val Ile Ala Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Gln Gly
275 280 285
Asp Lys Glu Tyr Cys Ile Thr Ser Asp Asp Leu Phe Ser Leu Pro Tyr
290 295 300
Cys Pro Gly Cys Thr Leu Val Val Gly Ala Ser Tyr Val Gly Leu Glu
305 310 315 320
Cys Ala Gly Phe Leu Ala Gly Leu Gly Leu Asp Val Thr Val Met Val
325 330 335
Arg Ser Val Leu Leu Arg Gly Phe Asp Gln Glu Met Ala Glu Lys Val
340 345 350
Gly Ser Tyr Leu Glu Gln Gln Gly Val Lys Phe Gln Arg Lys Phe Thr
355 360 365
Pro Ile Leu Val Gln Gln Leu Glu Lys Gly Leu Pro Gly Lys Leu Lys
370 375 380
Val Val Ala Lys Ser Thr Glu Gly Pro Glu Thr Val Glu Gly Ile Tyr
385 390 395 400
Asn Thr Val Leu Leu Ala Ile Gly Arg Asp Ser Cys Thr Arg Lys Ile
405 410 415
Gly Leu Glu Lys Ile Gly Val Lys Ile Asn Glu Lys Asn Gly Lys Ile
420 425 430
Pro Val Asn Asp Val Glu Gln Thr Asn Val Pro His Val Tyr Ala Ile
435 440 445
Gly Asp Ile Leu Asp Gly Lys Pro Glu Leu Thr Pro Val Ala Ile Gln
450 455 460
Ala Gly Lys Leu Leu Ala Arg Arg Leu Phe Gly Val Ser Leu Glu Lys
465 470 475 480
Cys Asp Tyr Ile Asn Ile Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr
485 490 495
Gly Cys Cys Gly Leu Ser Glu Glu Lys Ala Ile Glu Met Tyr Lys Lys
500 505 510
Glu Asn Leu Glu Val Tyr His Thr Leu Phe Trp Pro Leu Glu Trp Thr
515 520 525

Val Ala Gly Arg Asp Asn Asn Thr Cys Tyr Ala Lys Ile Ile Cys Asn
 530 535 540
 Lys Phe Asp Asn Glu Arg Val Val Gly Phe His Leu Leu Gly Pro Asn
 545 550 555 560
 Ala Gly Glu Ile Thr Gln Gly Phe Ala Ala Ala Met Lys Cys Gly Leu
 565 570 575
 Thr Lys Gln Leu Leu Asp Asp Thr Ile Gly Ile His Pro Thr Cys Gly
 580 585 590
 Glu Val Phe Thr Thr Leu Glu Ile Thr Lys Ser Ser Gly Leu Asp Ile
 595 600 605
 Thr Gln Lys Gly Cys
 610

<210> 303
 <211> 524
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 303
 Met Val Ala Ala Met Val Ala Ala Leu Arg Gly Pro Ser Arg Arg Phe
 1 5 10 15
 Arg Pro Arg Thr Arg Ala Leu Thr Arg Gly Thr Arg Gly Ala Ala Ser
 20 25 30
 Ala Ala Gly Gly Gln Gln Ser Phe Asp Leu Leu Val Ile Gly Gly Gly
 35 40 45
 Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Lys Lys
 50 55 60
 Val Ala Val Ala Asp Tyr Val Glu Pro Ser Pro Arg Gly Thr Lys Trp
 65 70 75 80
 Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu
 85 90 95
 Met His Gln Ala Ala Leu Leu Gly Gly Met Ile Arg Asp Ala His His
 100 105 110
 Tyr Gly Trp Glu Val Ala Gln Pro Val Gln His Asn Trp Lys Thr Met
 115 120 125
 Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg
 130 135 140
 Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser
 145 150 155 160
 Phe Val Asp Glu His Thr Val Arg Gly Val Asp Lys Gly Gly Lys Ala
 165 170 175
 Thr Leu Leu Ser Ala Glu His Ile Val Ile Ala Thr Gly Gly Arg Pro
 180 185 190
 Arg Tyr Pro Thr Gln Val Lys Gly Ala Leu Glu Tyr Gly Ile Thr Ser
 195 200 205
 Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val
 210 215 220
 Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile
 225 230 235 240
 Gly Leu Asp Thr Thr Val Met Met Arg Ser Ile Pro Leu Arg Gly Phe
 245 250 255
 Asp Gln Gln Met Ser Ser Leu Val Thr Glu His Met Glu Ser His Gly
 260 265 270
 Thr Gln Phe Leu Lys Gly Cys Val Pro Ser His Ile Lys Lys Leu Pro
 275 280 285
 Thr Asn Gln Leu Gln Val Thr Trp Glu Asp His Ala Ser Gly Lys Glu
 290 295 300
 Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro
 305 310 315 320
 Glu Thr Arg Thr Leu Asn Leu Glu Lys Ala Gly Ile Ser Thr Asn Pro
 325 330 335

Lys Asn Gln Lys Ile Ile Val Asp Ala Gln Glu Ala Thr Ser Val Pro
 340 345 350
 His Ile Tyr Ala Ile Gly Asp Val Ala Glu Gly Arg Pro Glu Leu Thr
 355 360 365
 Pro Thr Ala Ile Lys Ala Gly Lys Leu Leu Ala Gln Arg Leu Phe Gly
 370 375 380
 Lys Ser Ser Thr Leu Met Asp Tyr Ser Asn Val Pro Thr Thr Val Phe
 385 390 395 400
 Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Ala Val
 405 410 415
 Ala Leu His Gly Gln Glu His Val Glu Val Tyr His Ala Tyr Tyr Lys
 420 425 430
 Pro Leu Glu Phe Thr Val Ala Asp Arg Asp Ala Ser Gln Cys Tyr Ile
 435 440 445
 Lys Met Val Cys Met Arg Glu Pro Pro Gln Leu Val Leu Gly Leu His
 450 455 460
 Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Leu Gly
 465 470 475 480
 Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Gln Thr Val Gly Ile
 485 490 495
 His Pro Thr Cys Ser Glu Glu Val Val Lys Leu His Ile Ser Lys Arg
 500 505 510
 Ser Gly Leu Glu Pro Thr Val Thr Gly Cys Xaa Gly
 515 520

<210> 304

<211> 528

<212> PRT

<213> Mus musculus

<220>

<221> VARIANT

<222> 527

<223> Xaa = Any Amino Acid

<400> 304

Met Ala Ala Met Val Ala Gly Arg Met Trp Ala Ala Leu Arg Gly Pro
 1 5 10 15
 Ser Arg Arg Phe Arg Pro Arg Thr Arg Ala Leu Thr Arg Gly Thr Arg
 20 25 30
 Gly Ala Ala Ser Ala Ala Gly Gly Gln Ser Phe Asp Leu Leu Val
 35 40 45
 Ile Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln
 50 55 60
 Leu Gly Lys Lys Val Ala Val Ala Asp Tyr Val Glu Pro Ser Pro Arg
 65 70 75 80
 Gly Thr Lys Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile
 85 90 95
 Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gly Met Ile Arg
 100 105 110
 Asp Ala His His Tyr Gly Trp Glu Val Ala Gln Pro Val Gln His Asn
 115 120 125
 Trp Lys Thr Met Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn
 130 135 140
 Trp Gly His Arg Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn
 145 150 155 160
 Ile Lys Ala Ser Phe Val Asp Glu His Thr Val Arg Gly Val Asp Lys
 165 170 175
 Gly Gly Lys Ala Thr Leu Leu Ser Ala Glu His Ile Val Ile Ala Thr
 180 185 190
 Gly Gly Arg Pro Arg Tyr Pro Thr Gln Val Lys Gly Ala Leu Glu Tyr
 195 200 205
 Gly Ile Thr Ser Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys
 210 215 220
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 225 230 235 240

Leu Thr Gly Ile Gly Leu Asp Thr Thr Val Met Met Arg Ser Ile Pro
 245 250 255
 Leu Arg Gly Phe Asp Gln Gln Met Ser Ser Leu Val Thr Glu His Met
 260 265 270
 Glu Ser His Gly Thr Gln Phe Leu Lys Gly Cys Val Pro Ser His Ile
 275 280 285
 Lys Lys Leu Pro Thr Asn Gln Leu Gln Val Thr Trp Glu Asp His Ala
 290 295 300
 Ser Gly Lys Glu Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile
 305 310 315 320
 Gly Arg Val Pro Glu Thr Arg Thr Leu Asn Leu Glu Lys Ala Gly Ile
 325 330 335
 Ser Thr Asn Pro Lys Asn Gln Lys Ile Ile Val Asp Ala Gln Glu Ala
 340 345 350
 Thr Ser Val Pro His Ile Tyr Ala Ile Gly Asp Val Ala Glu Gly Arg
 355 360 365
 Pro Glu Leu Thr Pro Thr Ala Ile Lys Ala Gly Lys Leu Leu Ala Gln
 370 375 380
 Arg Leu Phe Gly Lys Ser Ser Thr Leu Met Asp Tyr Ser Asn Val Pro
 385 390 395 400
 Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu
 405 410 415
 Glu Glu Ala Val Ala Leu His Gly Gln Glu His Val Glu Val Tyr His
 420 425 430
 Ala Tyr Tyr Lys Pro Leu Glu Phe Thr Val Ala Asp Arg Asp Ala Ser
 435 440 445
 Gln Cys Tyr Ile Lys Met Val Cys Met Arg Glu Pro Pro Gln Leu Val
 450 455 460
 Leu Gly Leu His Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly
 465 470 475 480
 Phe Ala Leu Gly Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Gln
 485 490 495
 Thr Val Gly Ile His Pro Thr Cys Ser Glu Glu Val Val Lys Leu His
 500 505 510
 Ile Ser Lys Arg Ser Gly Leu Glu Pro Thr Val Thr Gly Cys Xaa Gly
 515 520 525

<210> 305
 <211> 520
 <212> PRT
 <213> Mus musculus

<400> 305

Met Val Ala Ala Leu Arg Gly Pro Ser Arg Arg Phe Arg Pro Arg Thr
 1 5 10 15
 Arg Ala Leu Thr Arg Gly Thr Arg Gly Ala Ala Ser Ala Ala Gly Gly
 20 25 30
 Gln Gln Ser Phe Asp Leu Leu Val Ile Gly Gly Ser Gly Gly Leu
 35 40 45
 Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Lys Lys Val Ala Val Ala
 50 55 60
 Asp Tyr Val Glu Pro Ser Pro Arg Gly Thr Lys Trp Gly Leu Gly Gly
 65 70 75 80
 Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala
 85 90 95
 Ala Leu Leu Gly Gly Met Ile Arg Asp Ala His His Tyr Gly Trp Glu
 100 105 110
 Val Ala Gln Pro Val Gln His Asn Trp Lys Thr Met Ala Glu Ala Val
 115 120 125
 Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg Val Gln Leu Gln
 130 135 140
 Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser Phe Val Asp Glu
 145 150 155 160
 His Thr Val Arg Gly Val Asp Lys Gly Gly Lys Ala Thr Leu Leu Ser
 165 170 175
 Ala Glu His Ile Val Ile Ala Thr Gly Gly Arg Pro Arg Tyr Pro Thr

	180		185		190
Gln Val Lys Gly Ala Leu Glu Tyr		Gly	Ile Thr Ser Asp	Asp Ile Phe	
195	200		205		
Trp Leu Lys Glu Ser Pro Gly		Lys	Thr Leu Val Val	Gly Ala Ser Tyr	
210	215		220		
Val Ala Leu Glu Cys Ala Gly	Phe	Leu Thr Gly	Ile Gly Leu Asp	Thr	
225	230		235		240
Thr Val Met Met Arg Ser Ile Pro	Leu Arg Gly	Phe Asp Gln Gln	Met		
245	250		255		
Ser Ser Leu Val Thr Glu His	Met Glu Ser His	Gly Thr Gln Phe Leu			
260	265		270		
Lys Gly Cys Val Pro Ser His	Ile Lys Lys Leu Pro	Thr Asn Gln Leu			
275	280		285		
Gln Val Thr Trp Glu Asp His	Ala Ser Gly Lys	Glu Asp Thr Gly Thr			
290	295		300		
Phe Asp Thr Val Leu Trp Ala	Ile Gly Arg Val Pro	Glu Thr Arg Thr			
305	310		315		320
Leu Asn Leu Glu Lys Ala Gly	Ile Ser Thr Asn Pro	Lys Asn Gln Lys			
325	330		335		
Ile Ile Val Asp Ala Gln Glu	Ala Thr Ser Val Pro	His Ile Tyr Ala			
340	345		350		
Ile Gly Asp Val Ala Glu Gly	Arg Pro Glu Leu Thr	Pro Thr Ala Ile			
355	360		365		
Lys Ala Gly Lys Leu Leu Ala	Gln Arg Leu Phe	Gly Lys Ser Ser Thr			
370	375		380		
Leu Met Asp Tyr Ser Asn Val	Pro Thr Thr Val	Phe Thr Pro Leu Glu			
385	390		395		400
Tyr Gly Cys Val Gly Leu Ser	Glu Glu Ala Val	Ala Leu His Gly			
405	410		415		
Gln Glu His Val Glu Val Tyr	His Ala Tyr Tyr Lys	Pro Leu Glu Phe			
420	425		430		
Thr Val Ala Asp Arg Asp Ala	Ser Gln Cys Tyr	Ile Lys Met Val Cys			
435	440		445		
Met Arg Glu Pro Pro Gln Leu	Val Leu Gly	Leu His Phe Leu Gly Pro			
450	455		460		
Asn Ala Gly Glu Val Thr	Gln Gly Phe Ala	Leu Gly Ile Lys Cys Gly			
465	470		475		480
Ala Ser Tyr Ala Gln Val Met	Gln Thr Val	Gly Ile His Pro Thr Cys			
485	490		495		
Ser Glu Glu Val Val Lys Leu	His Ile Ser Lys	Arg Ser Gly Leu Glu			
500	505		510		
Pro Thr Val Thr Gly Cys Cys	Gly				
515	520				

<210> 306
<211> 499
<212> PRT
<213> Mus musculus

<400> 306
Met Asn Gly Ser Lys Asp Pro Pro Gly Ser Tyr Asp Phe Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Lys Phe Asp Lys Lys Val Leu Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Lys Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Asp Thr Val Lys His
85 90 95
Asp Trp Glu Lys Met Thr Glu Ser Val Gln Ser His Ile Gly Ser Leu
100 105 110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
115 120 125

Asn Ala Tyr Gly Arg Phe Ile Gly Pro His Arg Ile Val Ala Thr Asn
 130 135 140
 Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr Lys Ile
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Thr Ala Gln
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Gly Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Gly Ser Asn Val Lys Cys Asp Tyr Asp
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
 385 390 395 400
 Val Tyr His Ser Phe Phe Trp Pro Leu Glu Trp Thr Val Pro Ser Arg
 405 410 415
 Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Leu Lys Asp Asp
 420 425 430
 Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
 435 440 445
 Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Gln Gln
 450 455 460
 Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile Phe Thr
 465 470 475 480
 Thr Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln Ser Gly
 485 490 495
 Cys Cys Gly

<210> 307
 <211> 497
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 497
 <223> Xaa = Any Amino Acid

<400> 307
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
 20 25 30
 Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45

Leu Gly Thr Asn Gly Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Lys Asp Ser Arg Asn Tyr Gly Trp Lys Leu Glu Asp Thr Val Lys His
 85 90 95
 Asp Trp Glu Lys Met Thr Glu Ser Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Lys Phe Ile Gly Pro His Lys Ile Met Ala Thr Asn
 130 135 140
 Asn Lys Gly Lys Glu Lys Val Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr Lys Ile
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Lys Val Thr Ala Lys
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Asp Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Gly Gly Ser Thr Val Lys Cys Asp Tyr Asp
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
 385 390 395 400
 Val Tyr His Ser Phe Phe Trp Pro Leu Glu Trp Thr Val Pro Ser Arg
 405 410 415
 Asp Asn Asn Lys Cys Tyr Ala Lys Val Ile Cys Asn Leu Lys Asp Asn
 420 425 430
 Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
 435 440 445
 Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Gln Gln
 450 455 460
 Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile Phe Thr
 465 470 475 480
 Thr Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln Ser Gly
 485 490 495

Xaa

<210> 308
 <211> 176
 <212> PRT
 <213> Rattus norvegicus

<400> 308
 Arg Ile His Ala Gly Gly Ala Gly Arg Arg Arg Gly Gly Ala Arg Arg

1	5	10	15												
Ala	Gly	Val	Phe	Ile	Leu	Leu	Ala	His	Pro	Asn	Lys	Lys	Gly	Leu	Leu
				20				25					30		
Arg	Lys	Leu	Ser	Thr	Met	Asn	Asp	Ser	Lys	Asp	Ala	Pro	Lys	Ser	Tyr
				35				40				45			
Asp	Phe	Asp	Leu	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	
				50				55			60				
Ala	Lys	Glu	Ala	Ala	Lys	Phe	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe
				65				70			75			80	
Val	Thr	Pro	Thr	Pro	Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys
				85				90				95			
Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu
				100				105				110			
Leu	Gly	Gln	Ala	Leu	Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu
				115				120			125				
Asp	Thr	Val	Lys	His	Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn
				130				135			140				
His	Ile	Gly	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys
				145				150			155			160	
Lys	Val	Val	Tyr	Glu	Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys
				165				170				175			

<210> 309
<211> 498
<212> PRT
<213> Rattus norvegicus

<220>
<221> VARIANT
<222> 497
<223> Xaa = Any Amino Acid

400	309														
Met	Asn	Asp	Ser	Lys	Asp	Ala	Pro	Lys	Ser	Tyr	Asp	Phe	Asp	Leu	Ile
1					5				10				15		
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
					20				25			30			
Lys	Phe	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
					35				40			45			
Leu	Gly	Thr	Asn	Gly	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
					50				55			60			
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Gly	Gln	Ala	Leu	
					65				70			75			80
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu	Asp	Thr	Val	Lys	His
					85				90			95			
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
					100				105			110			
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
					115				120			125			
Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys	Ile	Met	Ala	Thr	Asn
					130				135			140			
Asn	Lys	Gly	Lys	Glu	Lys	Val	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
					145				150			155			160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
					165				170			175			
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
					180				185			190			
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
					195				200			205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
					210				215			220			
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
					225				230			235			240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
					245				250			255			
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Lys	Val	Thr	Ala	Lys

260	265	270
Ser Thr Asn Ser Glu Glu Thr Ile	Glu Asp Glu Phe Asn	Thr Val Leu
275	280	285
Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile	Gly Leu Glu Thr	
290	295	300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys	Ile Pro Val Thr Asp	
305	310	315
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile	Gly Asp Ile Leu	
325	330	335
Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile	Gln Ala Gly Arg Leu	
340	345	350
Leu Ala Gln Arg Leu Tyr Gly Ser Thr Val Lys	Cys Asp Tyr Asp	
355	360	365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu	Tyr Gly Cys Cys Gly	
370	375	380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe	Gly Glu Glu Asn Ile Glu	
385	390	395
Val Tyr His Ser Phe Phe Trp Pro Leu Glu Trp	Thr Val Pro Ser Arg	
405	410	415
Asp Asn Asn Lys Cys Tyr Ala Lys Val Ile	Cys Asn Leu Lys Asp Asn	
420	425	430
Glu Arg Val Val Gly Phe His Val Leu	Gly Pro Asn Ala Gly Glu Val	
435	440	445
Thr Gln Ala Leu Gln Pro Leu Lys Cys Gly	Leu Thr Lys Gln Gln Leu	
450	455	460
Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala	Glu Ile Phe Thr Thr	
465	470	475
Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile	Leu Gln Ser Gly Cys	
485	490	495
Xaa Gly		

<210> 310
<211> 11
<212> PRT
<213> Rattus norvegicus

<400> 310
Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr
1 5 10

<210> 311
<211> 496
<212> PRT
<213> Rattus norvegicus

<400> 311
Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Asn Gly Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Lys Asp Ser Arg Asn Tyr Gly Trp Lys Leu Glu Asp Thr Val Lys His
85 90 95
Asp Trp Glu Lys Met Thr Glu Ser Val Gln Asn His Ile Gly Ser Leu
100 105 110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
115 120 125
Asn Ala Tyr Gly Lys Phe Ile Gly Pro His Lys Ile Met Ala Thr Asn
130 135 140

Asn Lys Gly Lys Glu Lys Val Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr Lys Ile
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Lys Val Thr Ala Lys
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Asp Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Gly Ser Thr Val Lys Cys Asp Tyr Asp
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
 385 390 395 400
 Val Tyr His Ser Phe Phe Trp Pro Leu Glu Trp Thr Val Pro Ser Arg
 405 410 415
 Asp Asn Asn Lys Cys Tyr Ala Lys Val Ile Cys Asn Leu Lys Asp Asn
 420 425 430
 Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
 435 440 445
 Thr Gln Ala Leu Gln Pro Leu Lys Cys Gly Leu Thr Lys Gln Gln Leu
 450 455 460
 Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile Phe Thr Thr
 465 470 475 480
 Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln Ser Gly Cys
 485 490 495

<210> 312
 <211> 526
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 525
 <223> Xaa = Any Amino Acid

<400> 312
 Met Ala Ala Ile Val Ala Ala Leu Arg Gly Ser Ser Gly Arg Phe Arg
 1 5 10 15
 Pro Gln Thr Arg Val Leu Thr Arg Gly Thr Arg Gly Ala Ala Gly Ala
 20 25 30
 Ala Ser Ala Ala Gly Gly Gln Gln Asn Phe Asp Leu Leu Val Ile Gly
 35 40 45
 Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly
 50 55 60
 Arg Lys Val Ala Val Ala Asp Tyr Val Glu Pro Ser Pro Arg Gly Thr
 65 70 75 80

Lys Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys
 85 90 95
 Lys Leu Met His Gln Ala Ala Leu Leu Gly Gly Met Ile Arg Asp Ala
 100 105 110
 Gln His Tyr Gly Trp Glu Val Ala Gln Pro Val Gln His Asn Trp Lys
 115 120 125
 Ala Met Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly
 130 135 140
 His Arg Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys
 145 150 155 160
 Ala Ser Phe Val Asn Glu His Thr Val His Gly Val Asp Lys Ala Gly
 165 170 175
 Lys Val Thr Gln Leu Ser Ala Lys His Ile Val Ile Ala Thr Gly Gly
 180 185 190
 Arg Pro Lys Tyr Pro Thr Gln Val Lys Gly Ala Leu Glu His Gly Ile
 195 200 205
 Thr Ser Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu
 210 215 220
 Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr
 225 230 235 240
 Gly Ile Gly Leu Asp Thr Thr Val Met Met Arg Ser Val Pro Leu Arg
 245 250 255
 Gly Phe Asp Gln Gln Met Ala Ser Leu Val Thr Glu His Met Glu Ser
 260 265 270
 His Gly Thr Arg Phe Leu Lys Gly Cys Val Pro Ser Leu Ile Arg Lys
 275 280 285
 Leu Pro Thr Asn Gln Leu Gln Val Thr Trp Glu Asp Leu Ala Ser Gly
 290 295 300
 Lys Glu Asp Val Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg
 305 310 315 320
 Val Pro Glu Thr Arg Asn Leu Asn Leu Glu Lys Ala Gly Val Asn Thr
 325 330 335
 Asn Pro Lys Asn Gln Lys Ile Ile Val Asp Ala Gln Glu Ala Thr Ser
 340 345 350
 Val Pro His Ile Tyr Ala Ile Gly Asp Val Ala Glu Gly Arg Pro Glu
 355 360 365
 Leu Thr Pro Thr Ala Ile Lys Ala Gly Lys Leu Leu Ala Gln Arg Leu
 370 375 380
 Phe Gly Lys Ser Ser Thr Leu Met Asn Tyr Ser Asn Val Pro Thr Thr
 385 390 395 400
 Val Phe Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Glu
 405 410 415
 Ala Val Ala Leu His Gly Gln Glu His Ile Glu Val Tyr His Ala Tyr
 420 425 430
 Tyr Lys Pro Leu Glu Phe Thr Val Ala Asp Arg Asp Ala Ser Gln Cys
 435 440 445
 Tyr Ile Lys Met Val Cys Met Arg Glu Pro Pro Gln Leu Val Leu Gly
 450 455 460
 Leu His Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala
 465 470 475 480
 Leu Gly Ile Gln Cys Gly Ala Ser Tyr Ala Gln Val Met Gln Thr Val
 485 490 495
 Gly Ile His Pro Thr Cys Ser Glu Glu Val Val Lys Leu His Ile Ser
 500 505 510
 Lys Arg Ser Gly Leu Asp Pro Thr Val Thr Gly Cys Xaa Gly
 515 520 525

<210> 313
 <211> 499
 <212> PRT
 <213> Sus Scrofa

<220>
 <221> VARIANT
 <222> 498
 <223> Xaa = Any Amino Acid

<400> 313

Met Asn Gly Ala Glu Glu Leu Pro Glu Met Tyr Asp Tyr Asp Leu Ile
1 5 10 15
Ile Ile Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
20 25 30
Arg Phe Asn Lys Arg Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
35 40 45
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Ser Cys
50 55 60
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
65 70 75 80
Arg Asp Ser Arg Asn Tyr Gly Trp Asn Val Glu Glu Thr Ile Lys His
85 90 95
Asp Trp Glu Arg Met Thr Glu Ala Val Gln Asn His Ile Gly Ser Leu
100 105 110
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Thr Tyr Glu
115 120 125
Asn Ala Tyr Gly Gln Phe Val Gly Pro His Arg Ile Lys Ala Thr Asn
130 135 140
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Lys Phe Leu Ile Ala
145 150 155 160
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
165 170 175
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
180 185 190
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
195 200 205
Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
210 215 220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
225 230 235 240
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
245 250 255
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln
260 265 270
Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met
275 280 285
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr
290 295 300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
305 310 315 320
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
325 330 335
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
340 345 350
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu
355 360 365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly
370 375 380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
385 390 395 400
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg
405 410 415
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn
420 425 430
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
435 440 445
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln
450 455 460
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr
465 470 475 480
Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly
485 490 495
Cys Xaa Gly